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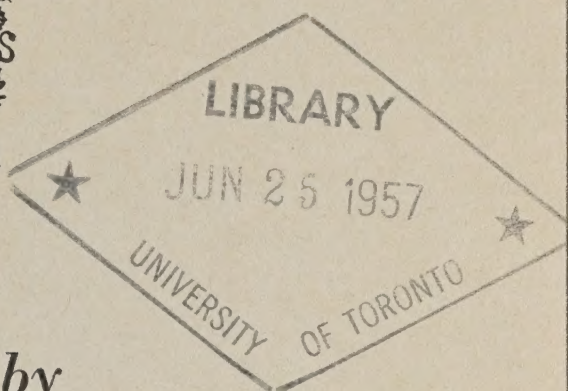




AI FN 55

57R 21

(5)



*Report by*

**THE TARIFF BOARD**

*Relative to the Investigation Ordered  
by the Minister of Finance  
respecting the Production, Consumption,  
Marketing, Imports and Exports of*

**WATERPROOF FOOTWEAR**

*and*

**RUBBER-SOLED CANVAS FOOTWEAR**

•

**Reference No. 121**







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**Reference No. 121**







Ottawa, March 14, 1957

The Honourable,  
The Minister of Finance,  
Ottawa

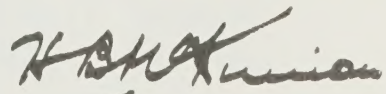
Dear Mr. Minister:

Reference No. 121

In accordance with your direction to the Tariff Board to conduct an inquiry respecting the Production, Consumption, Marketing, Imports and Exports of Waterproof Footwear and Rubber-soled Canvas Footwear,-

I have the honour to transmit herewith, for tabling in Parliament under the provisions of Section 6 of the Tariff Board Act, the Report of this Board in connection with the aforesaid Reference, in English and in French. A copy of the transcript of the evidence presented at the public hearing accompanies this Report.

Yours faithfully,

  
Chairman







# THE TARIFF BOARD

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Reference No. 121

An Inquiry into the Production, Consumption,  
Marketing, Imports and Exports of  
Waterproof Footwear and Rubber-soled  
Canvas Footwear

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The letter from the Minister of Finance, dated October 29, 1956, directing the Tariff Board to conduct the inquiry which is the subject of this Report, was as follows:

I have received representations to the effect that waterproof footwear and rubber-soled canvas footwear are being imported into Canada in such increased quantities and under such conditions as to cause or threaten serious injury to Canadian producers. Canadian rubber footwear producers have requested that additional tariff protection be provided by imposing an ad valorem duty under the British Preferential Tariff on rubber boots and shoes, and by fixing values for duty purposes under authority of section 38 of the Customs Act in respect of both canvas and waterproof footwear.

The present tariff rates applicable to the goods in question, including waterproof footwear whether of rubber or of plastic, are as follows:

<u>Tariff Item 611a</u>	<u>B.P. Tariff</u>	<u>M.F.N. Tariff</u>	<u>General Tariff</u>
(1) Boots, shoes, slippers and insoles of any material, n.o.p. ...	20 p.c.	27½ p.c.	40 p.c.
(2) Canvas shoes with rubber soles .....	20 p.c.	27½ p.c.	40 p.c.
<u>Tariff Item 617</u>			
Rubber boots and shoes ..	Free	22½ p.c.	25 p.c.



As the situation to which I have referred above is represented to be of an urgent nature, and as it relates to Tariff Items in respect of which Canada has commitments under Trade Agreements, the Government would wish to have in its possession promptly the most complete information that can be obtained regarding the production, consumption, marketing, imports and exports of waterproof footwear and rubber-soled canvas footwear, and regarding the effects on Canadian producers and consumers of the operation of the Canadian tariff relating thereto.

Accordingly, I direct the Tariff Board to make a study, under Section 4(2) of the Tariff Board Act, of the matters referred to in the preceding paragraph and to report to me.

Yours very truly,

W. E. HARRIS

#### Public Sitzings Held:

Public sittings of the Board under this Reference were held at Ottawa on December 11, 12 and 13, 1956. A nominal roll of those who registered at the hearing is incorporated herein as Appendix A.

A transcript of the proceedings at the public sittings is attached to this copy of the Report, for the Table of Parliament.

Apart from evidence or information put on record at public sittings, the Board secured for its own use considerable material of a confidential nature which, in accordance with the provisions of the Tariff Board Act, will be so treated.

#### Visits to Industries:

Due to the short period at the Board's disposal in connection with this Reference, it was not possible for its members to visit as many footwear plants as otherwise they would have done. The following plants were inspected by one or more members of the Board and their assistants:

Dominion Rubber Co., Limited, St. Jerome, Que.  
Koroflex Limited, Brampton, Ont.



## PART I

### STATEMENT OF THE CANADIAN RUBBER FOOTWEAR INDUSTRY IN PRESENTING ITS CASE TO THE TARIFF BOARD

In opening the presentation of its Brief, and before the calling of witnesses, the Canadian Rubber Footwear Industry, appearing for the applicant companies, stated:

"Specifically, this Brief will show and we ask the Tariff Board to find as facts (emphasis supplied):

"That imports of rubber-soled canvas shoes from low-wage Asiatic countries have increased by such a degree during the past five years that today they account for approximately sixty per cent of the total Canadian canvas footwear market.

"That imports of waterproof rubber footwear have doubled during the past two years to a point where they constitute 11.2 per cent of the total waterproof rubber footwear market, and that there is every indication that the rate of growth will continue at an accelerated pace paralleling the rapid growth of imports in the canvas footwear market.

"That Canadian exports of both canvas and waterproof rubber footwear, the volume of which formerly comprised one-third of the Canadian rubber footwear industry's business, have been virtually wiped out by foreign competition.

"That the Canadian Rubber Footwear Industry, through efficient methods of operation and promotion, has endeavoured to meet foreign competition by every means possible, but because of the extreme differences in wage rates and standard of living between Canada and overseas countries has been unable to do so.

"That the development of plastic rainwear footwear has not served to measurably reduce demand for rubber footwear, and furthermore that at present the use and effectiveness of plastic footwear is limited by the physical properties of the material.

"That the Canadian Rubber Footwear Industry is an essential Canadian industry and that it is in the interests of the people of Canada - in peacetime and during war - that this industry be permitted to survive."

Since, in his Letter of Reference, the Minister of Finance did not ask for specific recommendations as to the tariff treatment

to be applied to waterproof footwear and rubber-soled canvas footwear, the Board will, in the concluding part of this Report, comment ad seriatim on the six points emphasized by the Industry as those on which it desired findings as to fact.

The specific measures of relief for which the Industry is petitioning the Minister of Finance may most clearly be indicated by relating them to the existing tariff items applicable to imports of various types of footwear (other than of leather):

Rubber-soled canvas footwear:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Tariff Item 611a (2)	20 p.c.	27½ p.c.	40 p.c.

The request of the Industry is: That the values for duty on rubber-soled canvas footwear under this item, not entitled to entry under the British Preferential Tariff or any lower tariff, be fixed at levels bearing a reasonable relationship to the average all-in costs of the three lowest-cost Canadian producers of comparable lines.

Waterproof rubber footwear:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Tariff Item 617	Free	22½ p.c.	25 p.c.

The request of the Industry is: (1) that the value for duty on such waterproof rubber footwear be fixed — with the qualifications and as per the formula suggested in respect of rubber-soled canvas footwear; and (2) that a duty of 15 p.c. ad valorem be established, under the British Preferential Tariff, on such waterproof rubber footwear.

The Industry has made no request for tariff or other changes in respect of plastic footwear, dutiable at present under tariff item 611a (2), above.

Despite the fact that the Minister of Finance had not requested recommendations from the Board regarding the specific proposals for tariff treatment that had been made to him by the Industry, a great deal of the information placed on the record at the public hearings necessarily related to the said proposals. The Industry, through its own spokesman, pleaded its own case, which was, in general, supported by representatives of the Canadian Labour Congress. Opposition to the proposals — some of it in general terms and some quite specific in character — was voiced by several importers into Canada, by the Canadian Association of Consumers, by the Canadian Importers and Traders Association Inc., by British Bata Shoe Co., Limited and by the Bata Shoe Company Private Limited, Calcutta, India.



## PART II

### THE RUBBER FOOTWEAR INDUSTRY

In presenting the brief on behalf of the Canadian Rubber Footwear Industry, the industry's spokesmen stated:

Today in Canada, rubber footwear is produced by six firms in seven plants ... In the province of Quebec, four plants are operated by four companies. These are as follows:

The Acton Rubber Limited, Acton Vale  
The British Rubber Company Limited, Lachine  
Dominion Rubber Company Limited, St. Jerome  
The Miner Rubber Company, Granby.

In the province of Ontario, three plants are operated by three companies, one of whom also operates a plant in the province of Quebec. These are as follows:

Bata Shoe Company of Canada Limited, Batawa  
Dominion Rubber Company Limited, Kitchener  
Kaufman Rubber Company Limited, Kitchener.

Disregarding the matter of location, there are, therefore, six producers of footwear wholly or in part of rubber, recognized and described by the Canadian Rubber Footwear Industry as manufacturers of such products. It should be made clear, however, that one of the six, namely, Bata Shoe Company of Canada Limited — although a producer — was not a party to the application for revision of the tariff affecting rubber footwear. Its representative at the public hearing stated, in reply to questions by the Board, that he was not participating in the proceedings as either a domestic producer or an importer, but solely and specifically on behalf of (Bata) exporting units in England and India.

While certain of these firms produce rubber products other than footwear, only Dominion Rubber has a major interest in non-footwear lines. The other firms are primarily manufacturers of footwear.

The products of the industry are not confined solely to footwear manufactured entirely from rubber, but include a considerable variety of other footwear which consists only in part of rubber, the remainder being some other material. So-called utility footwear, the largest component of which is the 'athletic' or 'tennis' shoe, has been, and continues to be, a major production line; this type of footwear has a fabric upper with a rubber sole. Representatives of the industry displayed also a wide range of footwear for use in either industrial applications or by the armed forces. Sometimes such footwear is of all-rubber construction but often has leather or fabric

tops and frequently is lined. The producers emphasized that many of these types of footwear had been developed in Canada specifically to meet the needs of Canadian industry or of the armed forces operating in Canadian climatic conditions.

Among the types of footwear falling into the above-mentioned special-purpose categories are the following (the list is illustrative rather than exhaustive):

Men's Oil-Resistant Neoprene Boots — constructed of special rubber known as neoprene, which is oil-resistant and impervious to fats or any grease product and is therefore used in the oil industry and in dairies.

Men's Safety Leather-Top Lumbering Boots — constructed with a hard rubber toe and built-in iron mesh to deflect axe cuts.

Men's Spike-Sole Logging Boots — developed for logging, with steel spikes and safety toe.

Men's Safety Mining Boots — built with a hard rubber safety toe and a protecting guard across the instep.

Men's Insulated Arctic Boots — used for civilian and military purposes; this boot has a lining of cellular material.

Men's Vapour-Barrier Navy Boots — developed at the request of the Department of National Defence; heavily insulated and lined with rubber on the inside to prevent the insulation from becoming wet.

In recent years, the rubber footwear industry has entered into the production of plastic waterproof footwear. Output has expanded greatly in the space of a few years and is currently well in excess of two million pairs annually. This new development involves completely new production methods, the ultimate applications of which are still being explored. Plastic footwear is produced in all instances but one in the plants of the rubber footwear manufacturers.

In 1955, the value of rubber and plastic footwear was \$35,419,000. The most important products of the industry were as follows: overshoes, entirely of rubber (\$10,478,000); knee and hip boots (\$5,602,000); rubbers (\$4,977,000); overshoes, cloth uppers (\$4,457,000); plastic overshoes (\$2,257,000); boots, lumbermen's (\$2,183,000); boots, rubber bottoms and leather tops (\$918,000); rubber bottoms for leather tops (\$605,000); and utility, (\$3,942,000).

The seven plants comprising the rubber footwear industry employ about 5,000 persons; this is approximately 22 p.c. of the employment in the Rubber Products Industry, of which the footwear producers are usually considered to form a part. The value of output by the footwear producers was about 11 p.c. of the total value of output of the entire Rubber Products Industry in Canada. It will be noted that the output in footwear plants per worker employed is



much less than that for the industry as a whole, reflecting the high labour content in footwear versus other types of rubber products where there is a considerably higher degree of mechanization in the process.

In comparison with other manufacturing industries, the rubber footwear industry is relatively small in terms of both employment and value of output. The Dominion Bureau of Statistics lists fifty-three industries under the heading of "Manufacturing"; of this number, only two had an employment of 5,000 or less in September, 1956 (representatives of the Rubber Footwear Industry stated that employment was 5,000 in their industry):

Employment in Selected Manufacturing Industries  
September 1, 1956

Manufacturing, all	1,229,251
Rubber footwear (stated by the industry)	5,000
Rubber products, total	22,652
Leather footwear	19,444
Cotton yarn and broad woven goods	22,234
Woollen goods	11,315
Synthetic textiles	13,949
Men's clothing	33,552
Knit goods	21,860
Fur goods	3,638*
Hats and caps	3,771*
Pulp and paper	69,834
Primary iron and steel	38,835
Motor vehicles	27,641
Electrical apparatus	86,840
Chemicals	58,967

\*Dec. 1, 1955

Net Value of Production for Selected Industries, 1954  
(\$ '000)

Rubber footwear	30,063
	(35,419) (1955)
Rubber products, total	264,185
	(322,412) (1955)
Pulp and paper	641,410
Non-ferrous metal smelting and refining	352,038
Petroleum products	309,795
Slaughtering and meat packing	157,684
Motor vehicles	176,473
Wool textiles	122,733
Wool cloth	49,833
Wool yarn	29,246
Carpets	14,298
Wool goods, n.e.s.	29,357

Representatives of the Rubber Footwear Industry pointed out, in their testimony, that several rubber companies have ceased manufacturing rubber footwear in recent years. They stated: "Since World War II there has been a steady decrease in manufacturing capacity. The following long-established companies have discontinued rubber footwear manufacturing operations during this period: Cambridge Rubber Company Limited; Gutta Percha and Rubber Limited; B.F. Goodrich Canada Limited".

Subsequent to the public hearings, the following additional information was made available by representatives of the industry regarding the first two above-named firms. The plant and assets of the Cambridge Rubber Company Limited were purchased by the British Rubber Company in October, 1951; the latter now produces plastic footwear in these premises. The Cambridge plant was a small one and had been operated as a subsidiary by a rubber company with head office and main operations in the United States. The output of this firm was small, as indicated by the following figures:

	<u>Waterproof</u>	<u>Canvas</u>
	\$	\$
1950	175,000	38,000
1951	417,000	157,000
1952	384,000	213,000

The Gutta Percha and Rubber Limited discontinued production of rubber footwear during 1950. B.F. Goodrich Canada Limited ceased production of rubber footwear in July, 1954, and now distributes plastic waterproof footwear, manufactured by Koroflex Plastics Limited, Brampton, Ont.

In relation to the application by the industry, it is of interest that Cambridge and Gutta Percha ceased operations when imports were a relatively insignificant factor in the Canadian market.

The Canadian rubber footwear industry utilizes a considerable number of raw materials in its manufacturing operations, many of which are produced by other Canadian industries. Among the more important of these are synthetic rubber, cotton ducks, drills and sheeting, and chemicals. The table shows the industry's estimate of its consumption of the first two of these commodity groups and total Canadian production:

	<u>Total Canadian</u>	<u>Estimated</u>	<u>(2) as p.c.</u>
	<u>Production, 1955</u>	<u>Rubber Footwear</u>	<u>of (1)</u>
	(1)	(2)	(3)
		( '000)	
Synthetic rubber (lbs.)	41,831	1,534	3.7
Ducks, drills, sheetings (yds.)	229,735	3,967	1.7



## SITUATION: PRE-WORLD WAR II

The Canadian rubber footwear industry has been in existence for more than 100 years and is therefore one of Canada's oldest manufacturing industries. Representatives of the industry stated that rubber footwear was being made in Canada within ten years of Charles Goodyear's discovery and perfection, in 1839, of the vulcanization process for treating rubber. This consists of treating crude rubber with chemicals at a high temperature, thus greatly increasing its strength and elasticity and making possible its application in many commercial uses.

From its earliest years this industry has produced for both export and domestic markets. In the industry's brief to the Board, it is said that the first export shipment took place in 1854, to Hamburg, Germany. In subsequent years the volume of exports and the number of markets served increased greatly. During the twelve months ending March 31, 1925, Canadian producers shipped 2,502,257 pairs of canvas shoes with rubber soles to more than 60 countries or territories; during the same period it exported 685,102 pairs of waterproof footwear to more than 40 countries. A representative of footwear manufacturers in the United Kingdom, who was present at the Board's hearings, pointed out: "In the pre-war years these (Canadian) exports reached a considerable magnitude and in the period from 1930 to 1939 they increased from 2,787,000 pairs to 4,853,000 pairs, after a peak of 5,386,000 pairs in 1936 ... they actually represented more than 55 per cent of the United Kingdom consumption. This footwear entered the United Kingdom market free of any import duty". Canada continued to be an important exporter of rubber footwear until the late nineteen forties. In recent years, however, sales abroad have been relatively small and show little likelihood of increasing.

The rubber footwear industry is a type of industry which lends itself to a low-wage economy. It is an industry where the labour content in manufacturing costs is substantial; conversely, the capital investment per unit of output is low in relation to that of many other industries. Since capital is often a scarce commodity in relatively undeveloped economies, the tendency is to develop industries using labour rather than capital. This does not mean, of course, that the rubber footwear industry is not established in such highly-developed industrial economies as those of the United Kingdom and the United States, since it has been manufacturing in each of these countries for many years. However, in the United States the industry is assisted by a combination of tariff rates and values for duty based on domestic selling prices; in the United Kingdom it has experienced extensive import competition, in the past from Canada and at present from Asian sources.

During the years when the Canadian rubber footwear industry flourished in both the domestic and overseas markets, the differentials between Canadian and European wage-rates were very much smaller than those which currently exist. This was of prime importance to an industry whose labour costs amount to more than 50 p.c., on the average, of

total manufacturing costs. For example, the average hourly earnings in the rubber industry in the United Kingdom before World War I were appreciably below the Canadian level; in 1914, Canadian hourly earnings amounted to 15 cents in some plants, with somewhat higher earnings in others. In the latter nineteen thirties, when Canadian exports to the United Kingdom reached their peak, the differential between British hourly earnings in the rubber industry and earnings in certain important footwear plants in Canada was about 25 p.c. Thus the Canadian rubber footwear industry was in a position to compete in world markets at a time when its wage-rates were somewhat above those in other producing countries. This indicates that the Canadian plants must have been efficient in relation to those in other lands, and, also, that the quality of its products was highly regarded.

#### RECENT DEVELOPMENTS AFFECTING THE INDUSTRY

Since the end of World War II, new and altered circumstances have very considerably changed the position of the Canadian rubber footwear industry. First, the unprecedented development of the Canadian economy has had a major impact on this industry. To a considerable extent, expansion is occurring in industries with a high capital investment, producing goods with a relatively low labour content. In this category are those industries making pulp and paper products, petroleum products, chemicals, plastics, base metals, steel, pipes and tubes and synthetic textile fibres. New pipe lines for the distribution of petroleum and natural gas are also in this group. The following figures are illustrative in this regard; for a number of selected firms they show capital investment as a percentage of annual sales in 1955 or 1956:

	Capital as p.c. of Sales	
	<u>Depreciated</u>	<u>Non-depreciated</u>
Atlas Steels Limited	35.2	85.7
Steel Company of Canada	63.3	95.6
Imperial Oil Limited	30.7	53.2
Abitibi Power and Paper Company	132.6	209.2
Consolidated Paper Company	30.9	114.0
Representative Canadian Rubber Footwear Manufacturers		
No. 1	13.6	43.0
No. 2	18.5	32.3

As a general rule, industries with a high capital investment and a low labour outlay pay wages which are above the average. Expansion in these industries, coupled with full employment, has been a major factor in the recent rise in the average level of Canadian wages, thus aggravating the problems of the Canadian footwear industry, which must compete for labour with other domestic industries and at the same time sell its products in competition with those of lower-wage producers overseas. Canadian rubber footwear producers pay their



employees considerably less than the average earned by workers in those industries included by the Dominion Bureau of Statistics under the heading "Manufacturing" — an average of \$1.17 per hour in rubber footwear as against \$1.45 for "all manufacturing" in 1955. However, these lower-than-average hourly earnings are still much higher than those prevailing in most countries which compete with Canada in producing rubber footwear. The Canadian industry would thus appear to be in difficulties: unable to allow its wage-rates, already well above non-Canadian, to drop too far below the average of Canadian industry in general.

As noted in the previous section, hourly earnings in the Canadian rubber footwear industry were about 25 p.c. above those in the United Kingdom in the latter nineteen thirties. Since World War II this differential has widened. It was submitted in evidence that hourly earnings in the rubber footwear industry in the United Kingdom now average 44 cents for female labour and 67 cents for male labour. The weighted average of hourly earnings for both male and female workers, excluding those on tire and tube production, appears to be about 58 cents per hour. The average Canadian earning (\$1.17 per hour) is thus approximately 100 p.c. above the average paid to workers in the United Kingdom. The fact that the Canadian industry finds it difficult to compete in the United Kingdom market, even for the limited trade permitted under the Token Import Scheme\*, no doubt reflects, in part at least, these greatly increased differentials in wage levels.

The development of a large and apparently vigorous canvas footwear industry in Hong Kong is also a new factor facing Canadian producers. That Colony, which enjoys the benefits of most-favoured-nation treatment, has received a great influx of refugees from China and has an abundant supply of cheap labour, the main cost-component in making rubber footwear. It was reported by the Canadian industry that wage-rates in Hong Kong range from 4 to 15 cents per hour (Canadian) (a statement based upon information supplied to the Canadian Government Trade Commissioner in Hong Kong by the Commissioner of Labour of that Colony). A photostat copy of the letter from the Commissioner of Labour was filed with the Board at the public hearing.

From the comments of producers and other interested parties, there would appear to be a common view that the high labour content in Canadian rubber and canvas footwear is the major problem in competing with imports. In commenting on the difficulties of manufacturing in Canada, Mr. I.G. Needles, President of B.F. Goodrich Canada Limited, said at the public hearing before the Board:

The high cost of labour in Canada, and very high relative labour content in canvas rubber footwear, was such that we foresaw little opportunity for a correction or a certain and reasonably profitable future in that field, unless some action was taken to find means of providing more favourable climate for the manufacture and sale in Canada against imports.

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\*Under the Scheme, Canadian exporters may ship not more than 30 p.c. of their average exports in the years 1936, 1937 and 1938.

The Canadian Importers and Traders Association Incorporated ("the national association in Canada of those engaged in the import trade") made the following representations with respect to labour content:

This problem of labour cost differentials would appear to be an inevitable one in an industry of this kind. It would seem as if Canadian labour is going to continue to become a relatively more expensive factor in production, and labour-intensive industries are going to be subject to more vigorous import competition. Because of the inevitability of the trend ... the time may well have come when inevitable adjustments will have to take place in this part of the Canadian rubber industry.

Mr. Needles (B.F. Goodrich) had indicated (earlier in the hearing) that his company had in fact shifted production from rubber and canvas footwear to other lines.

In view of the differentials in Canadian and non-Canadian wage-levels, and the magnitude of labour costs in overall manufacturing costs, the Board requested the producers to attempt to ascertain whether the labour content in Canadian footwear has been increasing or decreasing over the past two decades. It was possible to obtain, from an important domestic producer, figures of labour content for two types of waterproof footwear. This information showed that during the past six years the labour content for these two types had increased by more than 10 p.c.\* If this trend should apply to the production of other types, it would seem almost certain that the industry's disadvantage in respect of labour cost may not be reduced in the near future.

It would appear that the Canadian rubber footwear industry is now in a much less competitive position in domestic and foreign markets than it was 25 years ago and that this results from:

1. an increase in the proportion of labour content in manufacturing costs;
2. a substantial increase in the differentials between Canadian and non-Canadian wage-levels;
3. the establishment of new competing industries in low-wage countries.

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\*The company felt that, in part at least, the higher proportion of labour had resulted from more economic use of materials. Moreover, in recent years man-hours per unit of production had actually been reduced.



## IMPORTS AND PRICES

In pre-World War II years, imports of both canvas and waterproof footwear were light — the former, in terms of physical volume, amounting to 5 p.c. of domestic disappearance in 1937 and the latter to only 2.8 p.c. During the early post-war years, imports were virtually non-existent, since the industry in other parts of the world had been dislocated by the war and was not in a position to compete actively in the Canadian market; in Hong Kong, the industry was only beginning its development. Furthermore, the devaluation of European currencies did not take place until the latter half of 1949, and the Canadian dollar was not freed until 1950. Thus, it was not until 1952 that there was any appreciable importation of either canvas or rubber footwear.

In 1952, imports of canvas footwear amounted to 216,000 pairs or 8.6 p.c. of domestic disappearance. In each subsequent year, both the number of pairs of canvas footwear imported and the proportion of the market taken over by such imports have increased. Thus, during the first nine months of 1956, imports amounted to 2,234,000 pairs, representing 60 p.c. of total domestic disappearance. In terms of dollars, imports amount to a considerably smaller proportion of domestic disappearance; in 1955, for example, imports of canvas footwear were 27 p.c. of domestic disappearance, by value (as against 55 p.c. in terms of pairs). The importers have concentrated on cheaper grades of footwear, which constitute more than 50 p.c. of the pairs sold but represent less than 30 p.c. of the dollar market; better than 70 p.c. of the market, in terms of dollars, has remained with the Canadian producers.

Imports of rubber footwear had also increased by 1952 to 434,000 pairs, or 3.7 p.c. of domestic disappearance in terms of pairs. Shipments from overseas increased substantially in subsequent years, reaching a total of 1,152,000 pairs in 1955 (785,000 pairs in nine months of 1956); in 1955 this was 9.6 p.c. of the Canadian market in terms of pairs of footwear. If imports are examined in terms of value, rather than by pairs, they represent a smaller proportion of the domestic market. For example, in 1952 the value of imports amounted to 2.8 p.c. of domestic disappearance, while in 1955 they accounted for 5.8 p.c. In other words, in 1952 domestic producers had 97 p.c. of the dollar market for rubber footwear in Canada and in 1955 they still retained 94 p.c. Few Canadian industries have anything approaching this proportion of the domestic market in their particular products.

There are virtually no imports of plastic footwear.

### Sources:

Hong Kong is the chief source of imported canvas footwear, with India second and the United Kingdom far behind in third place. In 1955, pairs of canvas footwear imported from these sources were as follows:

Hong Kong	1,980,000
India	351,000
United Kingdom	119,000

While shipments from Hong Kong and India have increased sharply and continuously in recent years, those from the United Kingdom have decreased from a high of 258,000 pairs in 1953. The latter country has therefore been losing its share of the Canadian import market and, if the present trend continues, it will supply even less than the 5 p.c. of total imports which it shipped in 1955. Clearly, Hong Kong and India are the overseas sources of canvas footwear of any real importance in the Canadian market.

In the case of rubber footwear, the United Kingdom is the chief supplier. Shipments of this type of footwear from the United Kingdom have been growing steadily year by year, accounting for 57.7 p.c. of total imports in 1955. In that year, Hong Kong and Czechoslovakia both increased their shipments to Canada, and Japan entered the Canadian market for the first time in the rubber footwear field. Although imports from the last three sources were considerably less than those from the United Kingdom, they show a sharp increase over 1954:

Imports of Waterproof Rubber Footwear  
( '000 pairs)

	<u>1954</u>	<u>1955</u>	<u>(10 mos.) 1956</u>
United Kingdom	438	665	428
Hong Kong	50	215	55
Czechoslovakia	41	155	234
Japan	-	29	119

From the above statistics it will be noted that in 1955 and 1956 the United Kingdom shipped a considerably smaller proportion of the total than in 1954. On the other hand, shipments from Czechoslovakia and Japan have increased appreciably in relation to total imports. In other words, imports from the latter two sources of supply are increasing at a much more rapid rate than are those from either the United Kingdom or Hong Kong, both of which shipped less in 1956 than in 1955.

While the figures of total imports during the first ten months of 1956 show this shift in sources of supply, there is no indication that the total import level for the entire year will be appreciably higher than during 1955. This supposition is based on actual imports for ten months of 1956 plus the actual imports in November and December of 1955. This calculation shows a small decrease in imports:

Imports of Waterproof Rubber Footwear  
(pairs)

1955		1,152,000
1956		
10 months 1956	912,000	
Nov. & Dec. 1955	205,000	1,117,000



A similar computation follows for canvas footwear, based on actual imports for ten months of 1956 plus actual imports in November and December of 1955. The resultant figure shows a level of imports for 1956 slightly above the volume of 1955:

Imports of Canvas Footwear  
(pairs)

1955		2,510,000
1956		
10 months 1956	2,287,000	
Nov. & Dec. 1955	322,000	2,609,000

Importers:

Importers are divided into two groups: (1) those firms which import but do not produce in Canada, and (2) those firms which, themselves or through subsidiaries, either import or purchase imported footwear and also produce in Canada. The following tabulation shows imports by each of these groups:

	<u>1955</u>		<u>1956 (9 mos.)</u>	
	Pairs ( '000)	p.c. of total	Pairs ( '000)	p.c. of total
<u>Canvas</u>				
Independent importers	745	29.68	897	40.16
Producer/importers	1,765	70.32	1,337	59.84
Total	2,510	100.00	2,234	100.00
<u>Waterproof</u>				
Independent importers	704	61.12	427	54.40
Producer/importers	448	38.88	358	45.60
Total	1,152	100.00	785	100.00

The above statistics show that in canvas footwear the greater part of imports, 70 p.c. of the total, was by firms which also produce such footwear in Canada; the remaining 30 p.c. by importers not affiliated with producers. In waterproof footwear, 38.88 p.c. of imports was by firms which are also producers of such footwear in Canada.

Of the Canadian producers, who are big importers of canvas footwear and who import much of the waterproof footwear, two are among the five applicant producers petitioning the Minister of Finance for relief.

It would appear that imports by non-producers are either largely in the hands of import houses, which specialize in footwear, or are made through Canadian branch firms of overseas producers.

Types of Imports:

Representatives of the Canadian Rubber Footwear Industry stated at the public hearings: "... importations of rubber-soled canvas shoes have consisted almost entirely of three types: namely,

Men's Calendered Sole Black Bal; Men's Moulded Sole Black Bal; Misses' Canvas Oxford." These are variously called 'utility', 'athletic' or 'tennis' shoes. For the most part, these types of footwear are worn by children and youths. Imports of other types of shoes with fabric uppers, e.g., men's oxfords with thick rubber soles, are imported only in small quantities.

In dealing with rubber footwear, representatives of the Canadian producers stated: "... up to the present the importations in waterproof rubber footwear have consisted almost entirely of five types; namely, Men's Boots (rubber, knee-high); Misses' Foldover Strap Overshoes; Women's Stadium Boots (rubber overshoes, lined); Men's Plain Over-Rubbers; Men's Sole Rubbers". However, the industry went on to state:

by enlarging in a limited way the varieties in each of the five types ... up to 50 p.c. of our total waterproof rubber footwear market could be taken from the Canadian industry by imports from low-wage countries ... if imports should include three or possibly four further types, with a limited variety in each additional type, (that) importations could account for up to 75 p.c. of the total waterproof market.

In other words, although imports of rubber footwear currently supply less than 10 p.c. of total domestic demand, they are of those types which represent about half of total Canadian consumption. Industry representatives stressed that there are no imports of the numerous types of boots manufactured in Canada for industrial application; they stated that, to their knowledge, such special purpose footwear is not available from Japan, Czechoslovakia, Hong Kong, "or any other country".

It was stated in evidence by an importer that the types of waterproof footwear being exported to Canada from the United Kingdom are: men's boots (rubber, knee-high); small children's Wellingtons; women's stadium boots (rubber overshoes, lined). Ordinary rubbers and men's overshoes are not exported from the United Kingdom to Canada. Although they are produced in the former country, one Canadian importer stated that it was not practical to sell British-made rubbers in Canada because of differences in lasts and types of shoes in the two countries, which often result in fitting problems. A representative of the British footwear producers also stated that, although overshoes are made in the United Kingdom, a very small quantity is exported to Canada. He said that this was mainly a question of price; that the British footwear, in these types, is not competitive with the domestic products. One retailer also stated that the lines and varieties of British rubber waterproof footwear are much more limited than those available from Canadian producers.

#### Quality Considerations:

At the public hearings before the Board there was lengthy discussion regarding the quality of imported footwear in comparison with that of the Canadian product. For the most part, Canadian producers contended that the imported footwear, both the canvas and the



waterproof types, was of good quality. The Board was left with the distinct impression that they felt that in many lines the imported products were of a quality which bore comparison with their own.

Importers of footwear who appeared before the Board stated a different point of view. One importer felt that "... the quality of a percentage of canvas footwear from Hong Kong is not up to a standard expected from it by the buying public". In reply to a question respecting the quality of imported footwear, another said: "... a lot of people today would not buy an imported line. Some of them had grief in the early days when they were not up to standard — they did not wear". With respect to recent imports, this witness said: "I would say they (the imports) are fair. The Canadian products are better. We only bring in a cheap article as a price proposition".

In view of the differing opinions regarding quality comparisons expressed by the Canadian rubber footwear industry and the importers, the Board consulted certain large retail outlets in order to obtain further information on this and other related matters. Representative types of canvas shoes with rubber soles were examined and discussed. It was the consensus of these retailers that the quality of many types of imported footwear is inferior to that of corresponding Canadian footwear; consequently, much of it is marketed as a lower-quality type of goods at lower prices than those applying to Canadian-made shoes. They implied that there had been complaints from consumers regarding the quality of the imported product, and that "returns" were greater than in the case of the domestic article. The quality of the imported canvas footwear varied, depending on the source; thus, although the Canadian-produced shoes were better in appearance and, apparently, in quality, the degree by which the imported footwear fell below the Canadian varied considerably, some being very much inferior, while other types showed comparatively good workmanship and materials.

Imported waterproof rubber footwear, in contrast with canvas, appeared to compare very favourably with corresponding domestic lines in appearance, quality and workmanship. This was particularly true of footwear manufactured in the United Kingdom. Rubbers of Japanese origin were examined and, although the finish differed to some small degree from that of the Canadian product, they were thought to be readily acceptable to the Canadian market.

From these observations it would appear that, in the case of canvas footwear, the Canadian producers have been making a better-quality product intended to sell at a higher price. It is true, however, that recently they have produced special lines of shoes, made specifically to compete with imported footwear. These special lines are of lesser quality than regular lines, to sell at lower prices. Nevertheless, even these special lines are, for the most part, of superior quality to and higher-priced than imports. From this, it would seem also that the Canadian industry is reluctant to lower its quality to the level of that of the bulk of the imported shoes, no doubt feeling that such a step would not be in keeping with its reputation as producers of quality products. No doubt it is also true that, even if it produced a poorer shoe quality-wise, its prices would



still be above those of the imported shoes; the domestic footwear would then have lost its main asset without gaining any alternative selling point. There is little doubt that regardless of some disparity in quality, many buyers, who previously had purchased the more expensive footwear, have been attracted into the new low-priced field.

### Prices:

There was general agreement at the hearings that prices of footwear imported from Asiatic sources are well below those of Canadian footwear, although the importers argued that to a considerable extent this reflected the lower quality of the imported product. Little data regarding the prices at wholesale of either domestic or imported footwear were submitted in evidence at the public hearings; the Board therefore subsequently obtained detailed pricing data from producers, importers and retail houses. Since virtually all this material was submitted in confidence, actual prices are not quoted in the following; for the purposes of this Report, it is deemed sufficient to show differentials in prices.

At the hearings, Canadian producers stressed that they regarded the prices of imported footwear as being unfair to them. They therefore stated their belief that the application of fixed valuations would remedy this situation by eliminating price competition in so far as imports were concerned; competition would then be in matters of style, quality, service and related fields. In this respect domestic producers stated:

Keen competition would continue unabated among the various Canadian brands and the imported brands, thus ensuring that the Canadian-made footwear would sell at lowest possible prices in relation to production costs.

This claim has been challenged by certain large retailers, who believe that fixing of values would create many delays and other obstacles to dealing in imported footwear. Importers testified that the elimination of price competition would certainly create serious problems for the imported canvas footwear and for certain types of waterproof boots, which, being of lower quality, can sell only on a lower-price basis.

With respect to the matter of competition, The Canadian Association of Consumers stated: "C.A.C. would like to be assured that it is a freely competitive industry. We note that a prohibition order was recently issued to this industry ...."\* This Association also made the following observation respecting protection: "C.A.C. recognizes that fixing values for duty according to some arbitrary scale is a form of hidden protection and as such is misleading. Tariff protection should be clearly recognizable in the form of rates of duty".

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\*Prohibition by The Supreme Court of Ontario (23 November, 1953 and 15 March, 1956) directed to named Canadian rubber producers with respect to restrictions on the production, sale, etc. of rubber products, including footwear.



It was noted by the Board that, of the extensive range of waterproof footwear offered for sale by large retailers, relatively few types were imported. It should be borne in mind, however, that, according to evidence at the hearings, five types of footwear, in which import competition does exist, comprise 50 p.c. of the domestic market.

There is no doubt that import prices generally are considerably below the prices of Canadian rubber footwear. The results of two surveys of footwear (almost entirely of the waterproof type) offered to the public by large retail outlets are of interest:

Survey No. 1 — 19 types of imported footwear;

- in 12 cases it was possible to compare these with Canadian footwear of the same type, but not necessarily of the same quality;
- of these 12 comparable types, prices were equal in one instance, Canadian prices were lower in two (by 0.75 p.c. and 1.75 p.c.) but were higher in nine (by from 10.4 p.c. to 33.2 p.c.).

Survey No. 2 — 23 types of imported footwear;

- in 17 cases it was possible to compare these with Canadian footwear of the same type, but not necessarily of the same quality;
- of these 17 comparable types, Canadian prices were lower in one instance (by 3 p.c.) but were higher in 16 (by from 0.5 p.c. to 28 p.c.). The ranges within which the Canadian prices exceeded import prices were as follows:

in 7 cases — by 0.5 to 10 p.c.;

in 3 cases — by more than 10 but not more than 20 p.c.;

in 6 cases — by more than 20 p.c.

In the following paragraphs, price comparisons have been related as closely as possible to the types of footwear respecting which the domestic producers complained particularly of import competition, most of which were included in the two Surveys above-mentioned. Unless otherwise indicated, prices are laid-down, purchaser's establishment, at wholesale.

Rubber: Men's Boots (knee-high) — large retailers confirmed that the United Kingdom is the chief overseas source of supply. Comparisons were made between imported and domestic boots in two price ranges. For the cheaper grade, prices were at about the same level. In the better

grade, the price of the imported product was 28 p.c. below the price of an equivalent Canadian product. Data from domestic retailers and from producers indicated that the bulk of their sales for this type of footwear was in the cheaper grades.

Misses' Foldover Strap Overshoes — in this type of footwear there appeared to be a substantial price differential between domestic and imported shoes. The imported shoe used in the comparison was of Czechoslovakian origin and was considered to be of a quality roughly equivalent to that of the domestic shoe, which was priced about 35 p.c. above the imported.

Women's Stadium Boots (overshoes, lined) — a stadium boot of United Kingdom origin was compared with two boots of domestic manufacture, one of which was of a quality somewhat superior to that of the imported product. The better-quality Canadian boot was priced at about 75 p.c. above the imported, while the second Canadian boot was priced at 30 p.c. above the imported one.

Men's Plain Over-Rubbers — importers and retailers were unable to quote prices for rubbers of non-Canadian origin. They stated that there had been only trial shipments from abroad and these had been found unsatisfactory.

Men's Sole Rubbers — the Canadian price for this type of footwear was almost 25 p.c. above that of similar footwear from Japan. The imported product would appear to be slightly less attractive than the Canadian from the point of view of finish. Apparently there are no imports of this type from the United Kingdom.

Canvas: Canvas-topped 'athletic' or 'tennis' shoes, ankle-high — the imported footwear was priced well below that of Canadian manufacture. In most instances the imported footwear was of inferior quality or appearance. The following shows amounts, in terms of percentages, by which Canadian prices exceeded those of imports:

Men's athletic boots - Canadian price exceeds Indian by 28 p.c.									
Boys'	"	"	-	"	"	"	"	"	20 p.c.
Small boys'	"	"	-	"	"	"	"	"	25-38 p.c.
Men's	"	"	#1 -	"	"	"	Hong Kong	"	29 p.c.
Men's	"	"	#2 -	"	"	"	"	"	82 p.c.
Men's	"	"	#3 -	"	"	"	"	"	50 p.c.

Plastic: Women's Plastic Footwear — there are virtually no imports. The price of plastic footwear of Canadian manufacture is much less than that of most types of rubber footwear; this is one of its chief selling attractions.

The preceding material shows that, in the great majority of instances, Canadian manufacturers' prices at wholesale are well above those of imported footwear. To counter the suggestion that Canadian prices may be unduly high, the Canadian producers submitted a number of comparisons between the retail prices of rubber footwear produced and sold in Canada and those of similar types of footwear produced and sold in the United States. The comparisons were as follows:



PRICE COMPARISON - CONSUMER LEVEL  
TWO LEADING MAIL ORDER HOUSE CATALOGUES  
(UNITED STATES - SEARS ROEBUCK vs. CANADA - T. EATON CO. LTD.)

<u>Description</u>	<u>Eaton's Catalogue Price</u>	<u>Sears Roebuck Catalogue Price</u>	<u>% Increase U.S. Price over Canadian</u>
Wos. General Purpose Boot	\$3.59	\$5.59	55.7
Men's Leather Top	8.95	11.95	33.5
Men's 4 Bkle. Overshoe	6.50	6.59	1.4
Men's Slide Fast. Overshoe	5.50	5.49	-.2
Men's Rubber - Overs	1.98	2.49	25.8
Wos. Stadium Boot	3.89	4.49	15.4
Wos. Slide Fast. Overshoe	3.98	4.29	7.8
Boys' Athletic Tennis Shoe	3.25	3.98	22.5

Note: Canadian prices include a 10 p.c. sales tax at the manufacturer's level, which is not applicable to the U.S. prices.

Representatives of the Canadian Rubber Footwear Industry believed that manufacturing and distribution costs in the United States are not appreciably higher than in Canada, if at all. They believed the United States system of valuating imported rubber footwear, on the basis of "American selling price", to be an important factor in establishing United States prices for rubber footwear, reflecting a substantial level of protection, particularly against lower-priced imports.

#### CANADIAN PRODUCTION

The products of the rubber footwear industry are shown by the Dominion Bureau of Statistics under four main categories, two of which are further sub-divided for statistical purposes. These categories are as follows:

1. Entirely of Rubber:
  - Boots - Knee and hip
  - Boots - Lumbermen's
  - Overshoes
  - Rubbers
2. Part Rubber:
  - Rubber bottoms and leather tops
  - Rubber bottoms for leather tops
  - Overshoes and galoshes, cloth uppers
3. Plastic
4. Utility (fabric uppers, rubber soles).

The footwear in the first three categories above is usually classified under the heading "waterproof footwear".

From a volume standpoint, footwear entirely of rubber is the most important type produced, with utility second, plastic third and part-rubber fourth. In terms of value, part-rubber is second, with plastic last, reflecting the relative values of these various types of footwear:

Canadian Production 1955  
( '000)

	<u>Entirely of Rubber</u>	<u>Part Rubber</u>	<u>Plastic</u>	<u>Utility</u>
Pairs	9,525	1,402	1,984	2,079
\$	23,240	5,980	2,257	3,942

In examining the various statistical tables (following "Financial" section) it will be noted that production in 1947 was at a very high level for all types of footwear (other than plastic). This was due to circumstances resulting from the war, which are unlikely to be repeated in peace-time; production in 1947, therefore, is not on a comparable basis with that in later years. Wartime shortages had created a world-wide backlog of demand for rubber goods and, as a consequence, the Canadian industry enjoyed in that year a substantial export trade amounting to 3,833,000 pairs of rubber footwear and 2,299,000 pairs of utility footwear; secondly, there was a backlog of domestic demand, created by wartime restrictions on the use of virgin natural rubber and on limitations of style. The removal of these latter on March 31, 1947, created a surge of demand for new styles of product, manufactured from virgin rubber.

Entirely of Rubber: After 1948, Canadian production of footwear made entirely of rubber ranged from 9.3 to 10.3 million pairs, annually, except in 1954, when it dropped to 8.7 million. It is significant to note that production of overshoes and rubbers — the two groups within which, domestic producers claim, the most severe import competition exists — did not decrease between 1949 and 1955, in spite of imports. Equally significant is the fact that production of lumbermen's boots, respecting which the domestic industry said there is no import competition, declined from 793,000 pairs in 1949 to 528,000 pairs in 1955. In this connection, the following report in the Gazette (Montreal) regarding the meeting on January 23, 1957, of the Canadian Pulp and Paper Association, may suggest an explanation:

H.A. Sewell, chairman of the woodlands section and vice-president in charge of woodlands, Ontario Paper Co., Thorold, Ont., said mechanization 'is paying off in terms of productivity'.

He said the same amount of wood was cut in Canadian forests last year as was cut in 1951, with 19 per cent less labor.

Production of knee and hip boots declined from 2,013,000 pairs in 1949 to 1,629,000 pairs in 1955. The industry informed the Board that,



within this latter group, it was experiencing import competition only in knee boots.

Although in the first nine months of 1956, production of all such types of footwear was below that in the same period of 1955, imports did not increase to any extent in 1956, on the basis of shipments for ten months.

The value of production of footwear entirely of rubber is well above the levels of either 1947 or 1949; only in 1951 was the total value of production appreciably above that in 1955, the latter being one of the highest production years, dollar-wise:

<u>Production — Footwear Entirely of Rubber</u>		
	<u>('000 dollars)</u>	<u>('000 pairs)</u>
1947	18,500	13,925
1949	16,704	9,348
1950	19,260	9,383
1951	27,108	10,361
1952	23,250	9,885
1953	22,437	9,324
1954	20,470	8,706
1955	23,240	9,525

Within the period of years covered by the table above, imports of waterproof rubber footwear (most of which fall into the "entirely of rubber" category) increased from 91,000 pairs in 1949 to 1,152,000 pairs in 1955. Furthermore, domestic production of plastic footwear, a competing product, expanded from nil to 1,707,000 pairs. In spite of these two factors, domestic output of waterproof rubber footwear, in terms of pairs, remained within a fairly constant range, as indicated above.

Part Rubber: According to spokesmen for the Canadian rubber footwear industry, there is "no appreciable import" competition in the lines of production covered by this heading. In spite of this lack of import competition, domestic production is down sharply from the levels of 1949 and 1950, when more than 2 million pairs were produced annually. In 1955, production revived partially, to 1.4 million pairs, an increase from 1.1 million in 1954. From these facts, it is only possible to conclude that demand for the types in this category has been falling in recent years. The dollar value of production is also down, from in excess of \$8,000,000 to slightly under \$6,000,000 in 1955.

Plastic: This type of waterproof footwear is a new development within the rubber footwear industry. The manufacturing process consists of pouring polyvinyl-chloride into metal moulds which are subjected to heat; the product then emerges in one piece, and buttons and reinforcements are attached to complete the article. This method of production eliminates most of the hand operations involved in "building" canvas, waterproof rubber, nylon and other types of footwear. The process first came into commercial operation in 1952, when total production amounted to only 60,000 pairs. In each succeeding year, production has increased greatly, reaching 1,707,000 pairs in 1955 and 1,984,000 pairs in nine months of 1956.

The popularity of this new type of protective footwear apparently has surprised even its producers. At the public hearings, representatives of Canadian producers informed the Board:

The chief type of footwear made from plastics has been confined to light-weight casual rainwear for ladies. This product created a new market for foot coverage but this has been primarily a supplementary market rather than a replacement of rubber footwear ... 95 per cent of the plastic shoes that have been produced in Canada so far are shoes (plastic) that cannot be worn satisfactorily in cold weather, and they are not what we consider cold weather shoes ... small as it (plastic) has been in the overall picture, the success achieved in this field has kept the industry keenly interested in the development of plastics for other types of footwear (than for women).

Another manufacturer emphasized that, in the industry's opinion, one of the main weaknesses of plastic footwear is its lack of flexibility under cold weather conditions and its rapid cut growth, i.e., the rate at which a small cut "runs". He stated that the industry is, however, devoting much time and research to overcoming these difficulties.

It would appear that the producers of plastic footwear have themselves underestimated the impact of their new product on the waterproof footwear market and that its uses are not confined to light rainwear; a number of women wear plastic footwear in all but the coldest weather, while most utilize it in the fall and early winter and again in the early spring and summer.

It has already been pointed out that annual production has jumped from 60,000 pairs to better than 2,000,000 pairs in five years. Plastic footwear is produced only for women's and children's use and therefore competes only with rubber waterproof footwear for women and children; it has therefore an important and growing place in the market for such footwear. In nine months of 1956, production of rubber overshoes and rubbers amounted to 5,734,000 pairs. Production of plastic footwear, at about 2,000,000 pairs for the same period, amounts to 25.85 p.c. of total production of light waterproof footwear of all types for men, women and children. Since only a part (very probably a major part) of the total production of rubber overshoes and rubbers is for women and children, the importance of plastic production in this field is understated.

Although figures are not available to indicate the exact extent to which plastic footwear has displaced ladies' rubber or nylon overshoes, a survey of sales by certain large retailers indicated that during the fall and early winter of 1956 (to just before Christmas) well over 50 p.c. of all sales of women's protective footwear was in plastic boots, (these sales were in southern Ontario, where the climate is somewhat milder than in many other regions of Canada). Plastic footwear in these establishments obviously was selling in direct competition with rubber and nylon shoes. Surveys of mail-order sales, Canada-wide, during the early winter of 1956 showed that, in one case,



better than 30 p.c. of all sales of protective footwear to both women and children consisted of plastic shoes; in another case, more than 15 p.c. of sales was in plastic footwear. New styles and a variety of colours apparently have attracted feminine buyers to plastic footwear in increasing numbers. The relatively low price of plastic footwear is no doubt another important factor in attracting sales; plastic over-shoes usually retail for about \$2.00.

Utility: This type of footwear includes all boots or shoes having canvas uppers and rubber soles. Canadian production has fallen off sharply since 1949, from 3,127,000 pairs (valued at \$4,820,000) to 2,079,000 pairs in 1955 (valued at \$3,942,000). Exports were negligible in each of these years and in no way affected the reduction in output. Imports, on the other hand, increased from 2,000 pairs to 2,510,000 pairs during this period. Lastly, demand for utility footwear (represented by domestic disappearance) increased from 3,012,000 pairs to 4,583,000 pairs. From these various figures, the following results hold true:

1. Production has decreased, in the years 1949 to 1955, by 1,048,000 pairs;
2. Imports have increased by 2,508,000 pairs;
3. Demand has increased by 1,591,000 pairs.

It would appear reasonable to draw the following conclusions: A very substantial increase in demand for canvas footwear has taken place concurrently with the increase in volume of imports; this reflects the fact that imported footwear has met a demand which was not previously being filled by domestic output. Phrased slightly differently: there is now concrete evidence that a substantial demand exists in Canada for lower-quality, lower-price, canvas boots and shoes. With imported shoes becoming available on the market to meet this demand, total Canadian consumption of canvas footwear has increased by more than a million and a half pairs over previous levels. The Canadian producers now appear to be attempting to enter this new field with footwear of reduced quality and consequently of lower price. It seems fairly definite that while imported footwear has catered to an expanded demand for 1.5 million pairs of footwear, it has also resulted in a transfer of demand for about one million pairs from domestic production to imports.

## UNEMPLOYMENT

Both the Canadian Rubber Footwear Industry and the Canadian Labour Congress stressed to the Board the importance of employment in this industry. The producers' brief stated:

At present this industry gives employment to approximately 5,000 persons. Since the post-war employment peak in the industry in 1947, employment has declined by approximately 2,000, a decline of about 30 p.c.

As is previously mentioned in this Report, 1947 was an extraordinary year, in that exports were very substantial and a large wartime backlog of demand was only then being met. The brief of the Canadian Labour Congress noted the special factors existing in that year. Both briefs, however, stressed concern about possible unemployment in the industry.

Following the hearings, the Board approached the Unemployment Insurance Commission in order to obtain data from regional offices respecting possible unemployment in the rubber footwear industry. The tables below show in detail the net results in three of the towns where rubber footwear plants are located. The Commission's statistics cover rubber plants (including tires, mechanical goods, etc.) in the towns mentioned below. In St. Jerome and Granby, these are footwear plants only and therefore an accurate picture of unemployment in the rubber footwear industry is shown for these two centres. Since there are a number of rubber plants in Kitchener engaged in the production of rubber products other than footwear, the net unemployment in this case is inflated in relation to footwear alone. It was not possible to obtain data respecting Lachine (British Rubber Company). The Commission keeps statistics of "unplaced applicants" (those who are seeking jobs) and of "unfilled orders" (requests by manufacturers for workers). The difference between the two sets of figures gives a measure of "net unemployment".

The following figures show that "net unemployment" in the rubber footwear industry on December 1, 1956, totalled 115 persons; this is 2.3 p.c. of the 5,000 workers employed in the industry. The tables also show that "net unemployment" of rubber footwear workers has actually decreased substantially in recent years. In 1952, for example, when imports were much lighter than at present, "net unemployment" in the industry was considerably greater than in 1956. Thus, there appears to have been no relationship between imports and unemployment. If workers have in fact been laid off, and this may well have been the case, they have found alternative employment, possibly in certain instances with prejudice to pension or other benefits.



NET UNEMPLOYMENT  
RUBBER PRODUCTS INDUSTRY

	<u>Mar. 1</u>	<u>June 1</u>	<u>Sept. 1</u>	<u>Dec. 1</u>
	<u>Granby</u>			
1952	70	59	43	54
1953	62	26	33	41
1954	58	21	45	42
1955	48	40	27	74
1956	68	30	28	16

	<u>St. Jerome</u>			
1952	224	133	27	70
1953	46	36	24	175
1954	130	59	18	77
1955	92	31	36	73
1956	38	20	15	34

	<u>Kitchener</u>			
1952	214	49	-8	53
1953	134	41	178	41
1954	482	294	289	289
1955	388	102	69	102
1956	198	1	2	65

(Total — Granby, St. Jerome and Kitchener)

1952	508	241	62	177
1953	242	103	235	257
1954	670	374	352	408
1955	528	173	132	249
1956	304	51	45	115

## FINANCIAL

All the rubber footwear producers in Canada are private companies and therefore do not publish their financial statements. Such statements were obtained, however, by the Board. Because this material is of a confidential nature, the Board cannot disclose details which could be associated with any one company; nevertheless, the following facts, while of a general nature, are considered to be both pertinent and useful to this study of the rubber footwear industry.

Of five companies whose statements were examined, all but one showed a profit on operations in 1955. The profit margin has, however, been sharply reduced in recent years: in 1955, e.g., profits for the industry, after deducting losses but before taxes, were 4.04 p.c. of total sales, while in 1951 profits were 9.82 p.c. of sales.

The profit margin in rubber footwear manufacturing is probably below that for the entire Rubber Products Industry, which showed a profit of 5.55 p.c. on sales in 1954.

On the other hand, the profits of the footwear industry compare rather favourably with those of the textile industries in 1954, which is generally recognized as having been a poor year for the textile group. One or two other industries included in the table below show considerably higher profit margins, while furniture manufacturers realized about the same profit. Profits for "all manufacturing" industry were 6.39 p.c., appreciably higher than in footwear manufacturing. All data are based on material published in "Taxation Statistics, 1956", Department of National Revenue, Ottawa (profits in all cases are before taxes):

<u>Industry</u>	<u>Profits as p.c. of Sales*</u>
Manufacturing industry (total)	6.39
Rubber footwear	4.04
Rubber products	5.55
Boots and shoes, leather	2.37
Cotton goods	.97
Woollen goods	.27
Men's clothing	.66
Women's clothing	1.44
Hosiery, knit goods, lingerie	.36
Furniture	3.78
Pulp and paper	16.41
Agricultural implements	.32
Hardware and tools	7.41

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\*Losses deducted from profits



### PART III

Having endeavoured to assemble as speedily as possible all information available, including evidence put on record at the public sittings; and

Not having been directed by the Minister of Finance to make specific recommendations as to the tariff treatment to be accorded to waterproof rubber footwear and rubber-soled canvas footwear,

The Tariff Board, in the following brief summation, comments ad seriatim upon the six submissions which the applicant Industry desired that the Board find to be facts:

- (1) That imports of rubber-soled canvas shoes from low-wage Asiatic countries have increased by such a degree during the past five years that today they account for approximately sixty per cent of the total Canadian canvas footwear market.

This textual rendering of a statistical fact cannot be gainsaid. What the bare factual statement, per se, does not convey is that, to a very considerable extent, such imports are catering to the needs or the preferences of an expanding market which these imports, themselves, have helped to create and are exploiting: a market made up of thousands of Canadian consumers who — while attracted by the current and growing vogue for rubber-soled canvas footwear — had not felt that they could afford to indulge their fancy at the prices charged for the competing — and admittedly superior — domestic product.

Although Hong Kong has been in recent years the dominant foreign supplier of the Canadian market, India has become a factor of some importance. The Indian product — which, while not equal to the Canadian in quality, is attractive on the score of price — is somewhat more expensive at retail than the Hong Kong footwear. This price-disparity would, of course, disappear, were valuations to be established on the basis suggested by the Industry — in which event the imports at present coming from Hong Kong might be supplied by India, or by Japan.

- (2) That imports of waterproof rubber footwear have doubled during the past two years, to a point where they constitute 11.2 per cent of the total waterproof rubber footwear market, and that there is every indication that the rate of growth will continue at an accelerated pace paralleling the rapid growth of imports in the canvas footwear market.

Imports of waterproof rubber footwear in 1955 represented 9.65 p.c. by volume of the apparent Canadian market for such footwear. On

a dollar basis, the imports accounted for only 5.8 p.c. of the market in the same year, reflecting the higher prices at which the domestic product is offered to the consumer.

Canadian footwear in this field sets a world-standard in quality — and poor-quality imports probably could not long successfully compete in this climate with the Canadian product. On this point, it is perhaps significant that, as respects quality, imported waterproof rubber footwear has been, on the whole, quite acceptable to the Canadian buyer.

In this type of footwear, the United Kingdom is by far the chief source of imports, its share of the total imports in 1955 having been 57.7 p.c. in terms of pairs. In terms of dollars, the United Kingdom's share of the total Canadian market in 1955 was only 3.7 p.c. In that year, waterproof rubber footwear from Japan and from Czechoslovakia was offered to Canadian buyers, the former country noticeably increasing its share in the year 1956. It must be said that, as regards quality, the footwear from these two countries was "good", although its finish and general outward appearance had not quite the appeal of the Canadian lines.

Despite imports, and despite growing and intensive competition, within the "waterproof" field, of plastic footwear — nearly all of it produced in Canadian rubber footwear factories — Canadian production of waterproof rubber footwear, in terms of pairs, has changed very little in recent years.

- (3) That Canadian exports of both canvas and waterproof rubber footwear, the volume of which formerly comprised one-third of the Canadian rubber footwear industry's business, have been virtually wiped out by foreign competition.

The published trade figures of the Dominion Bureau of Statistics show that annual exports of Canadian-produced rubber footwear of all types, including so-called utility shoes, currently amount to a fraction of annual shipments in pre-war and the early post-war years. The decline to present export levels took place virtually in one year, 1949, when exports declined to well under a million pairs, from 6 million pairs in 1947. Since 1950, exports have usually been under 200,000 pairs and are thus a small factor in production volume. There seems to be little doubt as to the veracity of the assertion of the Canadian footwear producers that the loss of export markets is due to competition from lower-cost non-Canadian suppliers.

- (4) That the Canadian Rubber Footwear Industry, through efficient methods of operation and promotion, has endeavoured to meet foreign competition by every means possible, but because of extreme differences in wage-rates and standard of living between Canada and overseas countries has been unable to do so.



The Board has not been able to compare the "efficiency" of the Canadian industry with that in other countries. Evidence was submitted to the Board in confidence, however, which showed that the man-hours required to produce certain types of footwear in Canada has been reduced in recent years, thus pointing to improved methods of operation. At the same time, the labour content in manufacturing costs has apparently not decreased — because of higher wage-rates and savings in costs of materials. While non-Canadian producers probably require at least the same number of man-hours to produce a pair of shoes, lower wage-rates result in the labour content in their manufacturing costs almost certainly being below that of Canadian producers. The resulting differential in manufacturing costs is, in the opinion of the Board, the basic reason for the success of imports in the Canadian market.

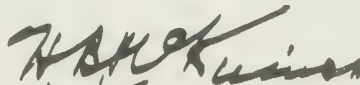
- (5) That the development of plastic rainwear footwear has not served to measurably reduce demand for rubber footwear, and furthermore that at present the use and effectiveness of plastic footwear is limited by the physical properties of the material.

In the light of surveys of retail sales and other information gathered from reputable retail outlets for protective footwear, there seems to be no doubt that plastic footwear has measurably reduced the demand for rubber footwear for women and children. While the physical properties of plastic footwear may at present limit its use in cold weather and for certain applications where a heavy gauge is required, it is apparently acceptable for use by women and children as light footwear during a major part of the year.

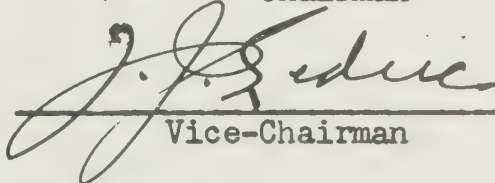
- (6) That the Canadian Rubber Footwear Industry is an essential Canadian industry and that it is in the interest of the people of Canada — in peacetime and during war — that this industry be permitted to survive.

The Board is not in a position to judge the essentiality of this industry, particularly with respect to national defence, regarding which the Minister may wish to consult the Department of National Defence.

It would appear that the industry has developed certain types of footwear for special industrial applications which might not be available from non-Canadian sources. It is, of course, difficult to evaluate the essentiality of such footwear to the industry making use of it.



Chairman



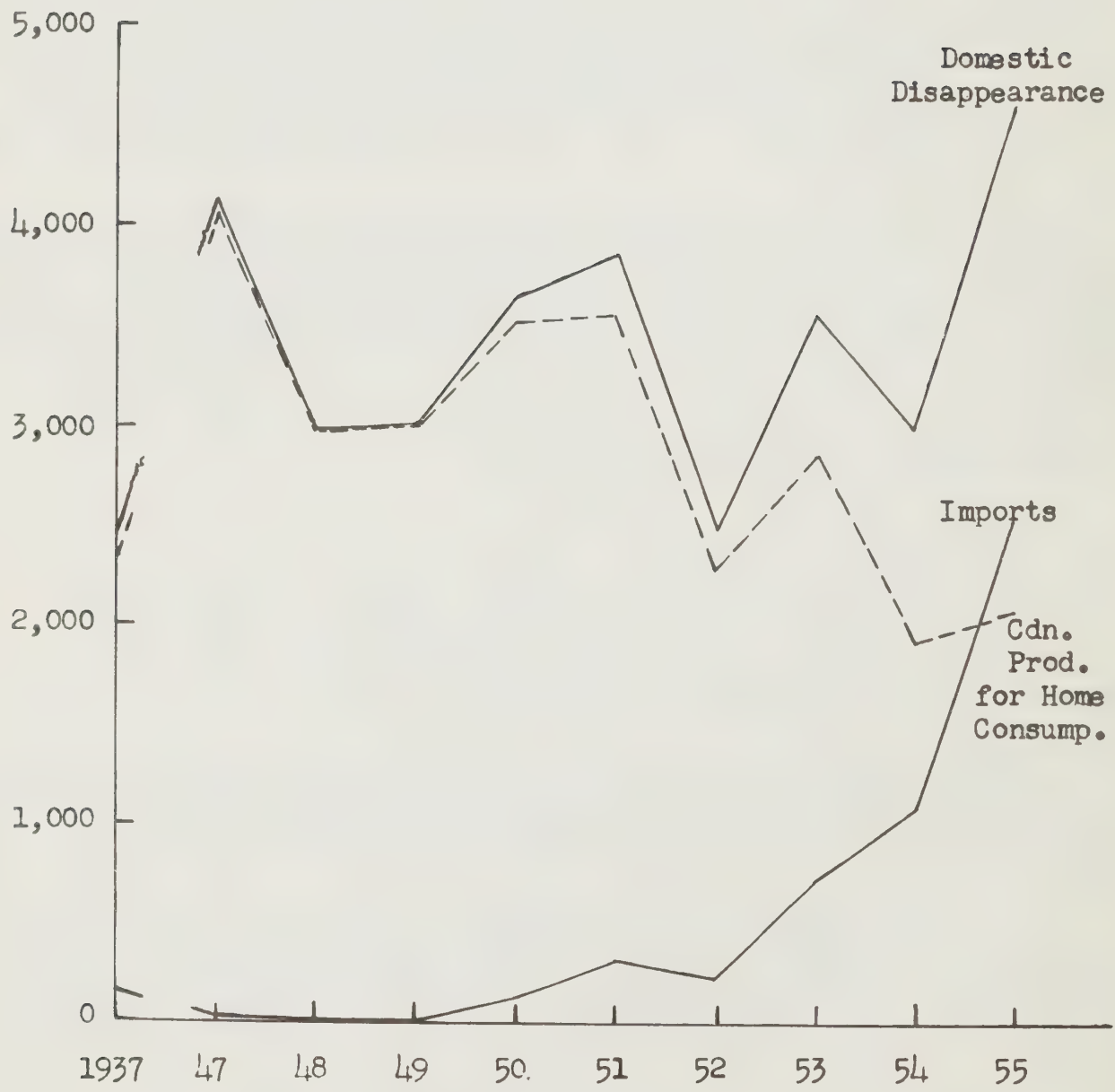
Vice-Chairman



Member

UTILITY FOOTWEAR

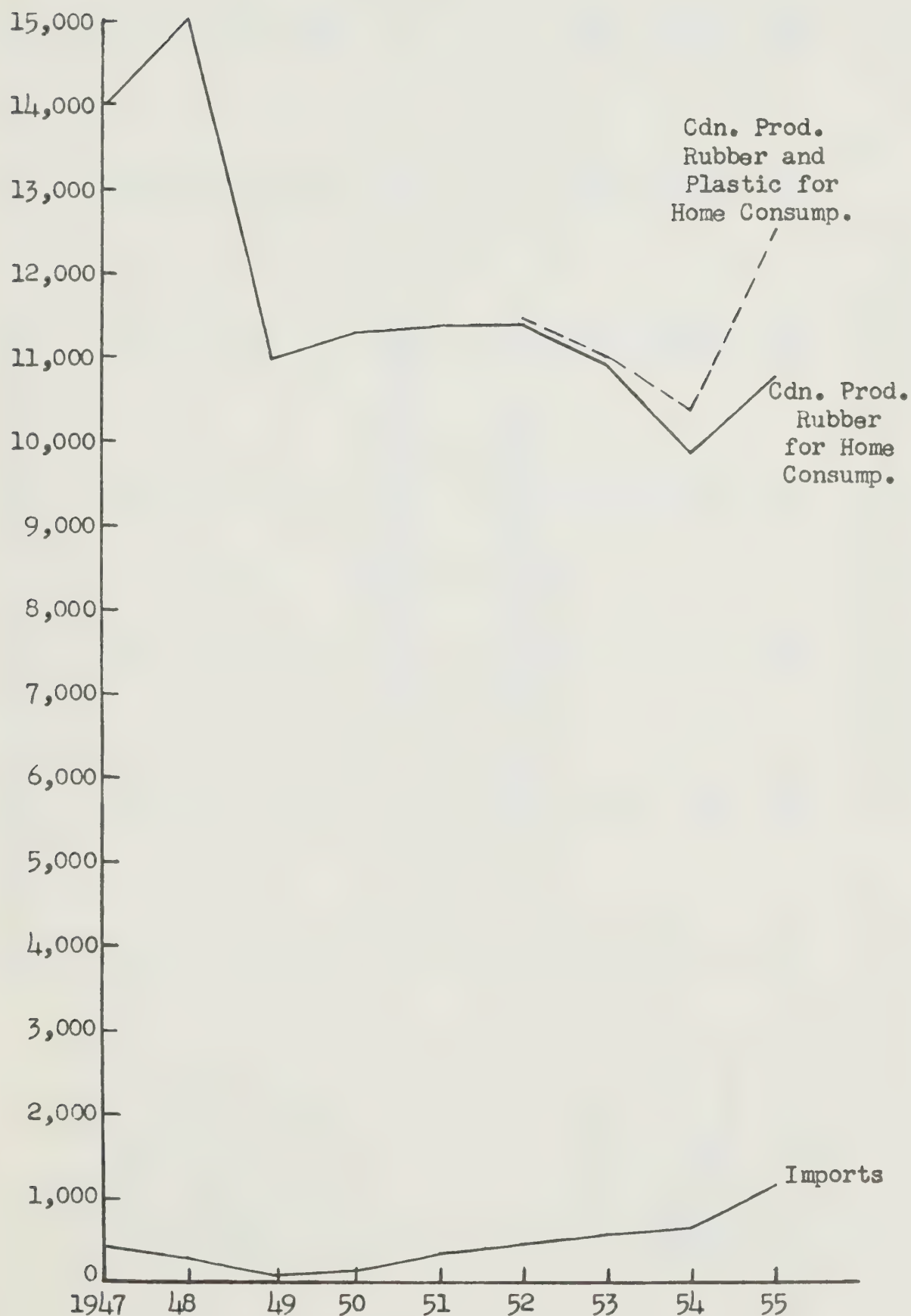
DOMESTIC DISAPPEARANCE, CANADIAN PRODUCTION  
FOR HOME CONSUMPTION, AND IMPORTS  
('000 pairs)





## RUBBER AND PLASTIC FOOTWEAR

CANADIAN PRODUCTION FOR HOME CONSUMPTION AND IMPORTS  
('000 pairs)



Note: 'utility' footwear not included

Imports of Canvas Shoes with Rubber Soles  
(Tariff Item 611a(2) — s.c. 1702)  
(‘000 dollars)

	<u>1937</u>	<u>1947</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
United Kingdom	3	-	1	63	55	178	102	59
Hong Kong	-	-	-	6	49	255	462	1,055
India	30	-	-	66	15	27	67	171
Japan	-	-	-	-	-	-	1	11
United States	1	28	2	11	11	13	21	20
Netherlands	-	-	-	-	-	12	15	14
Other	2	-	-	73	27	6	3	4
<b>Total</b>	<b>36</b>	<b>28</b>	<b>3</b>	<b>219</b>	<b>157</b>	<b>491</b>	<b>671</b>	<b>1,334</b>

Imports of Rubber Boots and Shoes  
(Tariff Item 617 — s.c. 1703)  
(‘000 dollars)

	<u>1937</u>	<u>1947</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
United Kingdom	7	1	5	311	497	561	632	913
Hong Kong	-	-	19	-	25	73	44	169
Czechoslovakia	-	145	25	181	22	57	28	158
Japan	-	-	-	-	-	-	-	24
United States	94	475	36	38	87	125	93	88
Switzerland	-	-	-	3	4	19	40	37
Netherlands	-	-	-	12	-	12	17	7
Other	-	-	-	2	11	6	7	16
<b>Total</b>	<b>101</b>	<b>621</b>	<b>85</b>	<b>547</b>	<b>646</b>	<b>853</b>	<b>861</b>	<b>1,412</b>



Imports of Canvas Shoes with Rubber Soles  
(Tariff Item 611a(2) -- s.c. 1702)  
( '000 pairs)

	<u>1937</u>	<u>1947</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
United Kingdom	6	-	1	63	61	258	155	119
Hong Kong	-	-	-	5	72	345	717	1,980
India	114	-	-	159	36	65	159	351
Japan	-	-	-	-	-	-	1	25
United States	1	12	1	9	10	11	12	15
Netherlands	-	-	-	-	-	14	15	14
Other	5	-	-	78	37	12	3	6
Total	126	12	2	314	216	705	1,062	2,510

Imports of Rubber Boots and Shoes  
(Tariff Item 617 -- s.c. 1703)  
( '000 pairs)

	<u>1937</u>	<u>1947</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
United Kingdom	34	-	4	174	281	332	438	665
Hong Kong	-	-	15	-	28	86	50	215
Czechoslovakia	-	120	42	159	32	70	41	155
Japan	-	-	-	-	-	-	-	29
United States	90	284	30	27	84	84	62	59
Switzerland	-	-	-	3	2	11	19	17
Netherlands	-	-	-	6	-	7	11	5
Other	-	-	-	1	7	2	4	7
Total	124	404	91	370	434	592	625	1,152

PRODUCTION OF WATERPROOF AND UTILITY FOOTWEAR  
('000 dollars)

	<u>All Rubber</u>	<u>Part Rubber</u>	<u>Plastic</u>	<u>Utility</u>	<u>Total</u>
1947	18,500	10,125	-	6,549	35,174
1949	16,704	7,185	-	4,820	28,709
1950	19,260	7,263	-	6,200	32,723
1951	27,108	8,136	-	7,849	43,093
1952	23,250	8,500	42	5,124	36,916
1953	22,437	7,496	113	5,425	35,471
1954	20,470	5,140	605	3,848	30,063
1955	23,240	5,980	2,257	3,942	35,419

PRODUCTION OF WATERPROOF AND UTILITY FOOTWEAR  
('000 pairs)

	<u>All Rubber</u>	<u>Part Rubber</u>	<u>Plastic</u>	<u>Utility</u>	<u>Total</u>
1947	13,926	3,958	-	6,393	24,277
1949	9,348	2,223	-	3,127	14,698
1950	9,383	2,124	-	3,664	15,171
1951	10,361	1,699	-	3,643	15,703
1952	9,885	1,693	60	2,304	13,942
1953	9,324	1,651	104	2,855	13,934
1954	8,705	1,178	526	1,924	12,333
1955	9,525	1,402	1,707	2,079	14,713
1956 *	6,593	970	1,984	1,470	11,017

\* 9 months



PRODUCTION OF WATERPROOF FOOTWEAR  
( '000 dollars)

Entirely of Rubber

	<u>Boots - knee and hip</u>	<u>Boots - lumbermen's</u>	<u>Overshoes</u>	<u>Rubbers</u>	<u>Total</u>
1937	6,442	3,114	5,007	3,374	17,937
1947	7,867	2,267	4,364	4,002	18,500
1949	4,745	1,704	6,979	3,276	16,704
1950	4,891	1,433	9,086	3,849	19,259
1951	7,261	2,620	12,760	4,467	27,108
1952	5,422	2,113	13,072	4,544	25,151
1953	4,402	2,346	11,614	4,075	22,437
1954	4,736	2,526	8,850	4,359	20,471
1955	5,602	2,183	10,478	4,977	23,240

Part Rubber

	<u>Rubber bottoms and leather tops</u>	<u>Rubber bottoms for leather tops</u>	<u>Overshoes and galoshes cloth uppers</u>	<u>Total</u>
1947	1,900	399	7,826	10,125
1949	1,293	467	5,425	7,185
1950	1,296	664	5,304	7,264
1951	2,070	697	5,369	8,136
1952	1,610	590	6,299	8,499
1953	965	568	5,963	7,496
1954	660	513	3,968	5,141
1955	918	605	4,457	5,980

Plastic

<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
—	—	—	—
42	113	605	2,257

PRODUCTION OF WATERPROOF FOOTWEAR  
( '000 pairs)

Entirely of Rubber

	<u>Boots — knee and hip</u>	<u>Boots — lumbermen's</u>	<u>Overshoes</u>	<u>Rubbers</u>	<u>Total</u>
1937	3,713	1,707	3,185	5,085	13,690
1947	4,346	1,405	2,669	5,505	13,925
1949	2,013	793	2,850	3,692	9,348
1950	1,812	537	3,250	3,784	9,383
1951	2,135	762	3,656	3,808	10,361
1952	1,617	601	3,920	3,746	9,884
1953	1,318	570	4,030	3,407	9,325
1954	1,440	678	2,988	3,600	8,706
1955	1,629	528	3,518	3,850	9,525
1956*	1,114	391	2,797	2,291	6,593

Part Rubber

	<u>Rubber bottoms and leather tops</u>	<u>Rubber bottoms for leather tops</u>	<u>Overshoes and galoshes cloth uppers</u>	<u>Total</u>
1947	411	248	3,299	3,958
1949	202	266	1,755	2,223
1950	209	291	1,625	2,125
1951	223	248	1,228	1,699
1952	180	229	1,284	1,693
1953	132	226	1,292	1,650
1954	86	190	903	1,179
1955	138	205	1,059	1,402
1956*	114	211	646	971

Plastic

1952	1953	1954	1955	1956*
—	—	—	—	—
60	104	526	1,707	1,984

\* 9 months



DOMESTIC DISAPPEARANCE OF FOOTWEAR  
( '000 dollars)

Utility (canvas or other fabric tops)

	<u>Production</u>	<u>Exports</u>	<u>Production for Home Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as p.c. of D.D.</u>
1937	3,070	935	2,135	935	3,070	30.45
1947	6,549	2,222	4,327	29	4,356	0.66
1949	4,820	132	4,688	3	4,691	-
1952	5,124	531	4,593	156	4,749	3.28
1953	5,425	304	5,121	492	5,613	8.76
1954	3,848	172	3,676	670	4,346	15.41
1955	3,942	334	3,608	1,333	4,941	26.98

Rubber

	<u>Production</u>	<u>Exports</u>	<u>Production for Home Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as p.c. of D.D.</u>
1947	18,500	5,868	12,632	621	13,253	4.68
1949	16,704	1,049	15,655	84	15,739	0.53
1952	23,250	531	22,719	647	23,366	2.77
1953	22,437	304	22,133	852	22,985	3.84
1954	20,470	172	20,298	861	21,159	4.07
1955	23,240	334	22,906	1,412	24,318	5.80

DOMESTIC DISAPPEARANCE OF FOOTWEAR  
( '000 pairs)

Utility (canvas or other fabric tops)

	<u>Production</u>	<u>Exports</u>	<u>Production for Home Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as p.c. of D.D.</u>
1937	4,255	1,935	2,320	126	2,446	5.15
1947	6,393	2,299	4,094	12	4,106	.29
1949	3,127	117	3,010	2	3,012	.06
1952	2,304	28	2,276	216	2,492	8.66
1953	2,855	19	2,836	705	3,541	19.91
1954	1,924	14	1,910	1,062	2,972	35.73
1955	2,079	6	2,073	2,510	4,583	54.76
1956*	1,470	5	1,465	2,234	3,699	60.39

Rubber

	<u>Production</u>	<u>Exports</u>	<u>Production for Home Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as p.c. of D.D.</u>
1947	17,883	3,833	14,050	404	14,454	2.79
1949	11,571	629	10,952	91	11,033	.82
1952	11,577	183	11,394	434	11,828	3.66
1953	10,975	109	10,866	592	11,458	5.16
1954	9,883	60	9,823	625	10,448	5.98
1955	10,927	142	10,785	1,152	11,937	9.65
1956*	7,563	107	7,456	785	8,241	9.52

\*9 months



CANADIAN TRADE WITH SELECTED COUNTRIES  
( '000 dollars)

	Total Exports from Canada		Total Imports into Canada	
	(12 mos.) 1955	(10 mos.) 1956	(12 mos.) 1955	(8 mos.) 1956
United Kingdom	769,313	654,888	400,531	327,461
Hong Kong	7,253	5,728	5,875	3,997
India	24,669	20,926	35,147	20,114
Japan	90,893	106,552	36,718	39,758
Czechoslovakia	1,062	12,135	2,880	3,337

CHIEF COMMODITIES OF CANADIAN TRADE WITH SELECTED COUNTRIES  
('000 dollars)

<u>Commodity</u>	<u>Exports</u>		<u>Commodity</u>	<u>Imports</u>	
	<u>1955</u>	<u>1956</u> <sup>*</sup>		<u>1955</u>	<u>1956</u> <sup>**</sup>
<u>United Kingdom</u>					
Aluminum, primary forms	97,507	79,262	Waterproof footwear	913	559
Copper ingots, bars, billets	48,237	41,336	Canvas footwear	59	94
Nickel in matte or speiss	33,103	27,298	Fibres, textiles and products	95,396	72,122
Zinc spelter	19,421	12,610	Iron and products	111,993	111,432
Wheat	148,274	142,427	Non-ferrous metals and products	50,839	48,614
Barley	43,832	26,866	Non-metallic minerals	32,009	23,223
Wheat flour	18,464	17,892	Chemicals and allied products	22,626	14,966
Newsprint paper	33,013	35,828			
Wood-pulp	34,815	25,111			
Planks, boards and flooring	70,420	34,868			
<u>Japan</u>					
Wheat	52,699	51,365	Waterproof footwear	24	36
Barley	5,779	9,285	Canvas footwear	11	51
Wood-pulp	5,531	11,137	Casing, gas, water, etc.	3,445	5,820
Flax seed	4,924	5,129	Bauxite, alumina	1,285	779
Iron ore	3,588	1,770	Toys, mechanical, metal	1,121	1,204
Seeds, n.o.p.	2,219	-	Plywood, glued, cemented	1,447	1,263
Asbestos, milled fibres	1,937	2,352	Oranges, mandarins, fresh	1,367	12
Magnesium	1,260	1,962	Cotton fabrics	2,175	2,934
Copper scrap, slag, skimmings	64	5,099	Salmon, canned, prepared	-	3,009
Lead in pigs	310	2,604	Wire nails, over one inch	340	783
Drugs and chemicals, n.o.p.	1,233	1,917	Cotton clothing, woven	301	1,151

<sup>\*</sup>10 months

<sup>\*\*</sup>8 months



CHIEF COMMODITIES OF CANADIAN TRADE WITH SELECTED COUNTRIES — concluded.  
( '000 dollars)

<u>Commodity</u>	<u>Exports</u>		<u>Commodity</u>	<u>Imports</u>	
	<u>1955</u>	<u>1956*</u>		<u>1955</u>	<u>1956**</u>
<u>India</u>					
Locomotives and parts	10,970	9,777	Canvas footwear	171	242
Aluminum, semifabricated	1,052	457	Fabrics, jute, unbleached	10,540	6,141
Aluminum, primary forms	758	497	Tea, black	12,645	6,738
Newsprint paper	1,970	1,240	Manganese ore	1,810	1,088
Wood-pulp	1,096	986	Peanuts, green	1,766	653
Copper ingots, bars, billets	1,318	1,916	Cotton fabrics	2,345	1,717
Wheat	602	-			
<u>Hong Kong</u>					
Polystyrene	1,525	364	Waterproof footwear	169	43
Aluminum, primary forms	531	301	Canvas footwear	1,055	774
Fountain pens and sets	371	529	Peanuts, green	650	499
Medicinal preparations	220	176	Lights, head, side, etc.	376	202
Autos, new, over \$1,000	153	264	Walnuts, shelled	191	50
Wheat flour	-	972	Gloves, synthetic	58	131
Wheat, n.o.p.	570	633	Fireworks, firecrackers	110	102
Synthetic resins	145	824	Fishery products	57	103
<u>Czechoslovakia</u>					
Butter	503	-	Waterproof footwear	158	133
Wool rags and waste	461	35	Sheet glass, transparent	436	354
Barley	-	1,990	Glass, tableware, cut glass	251	198
Wheat	-	9,939	Portland cement	-	370
			Hoods and shapes of fur felt	84	276
			Cotton fabrics	126	339
*10 months			**8 months		

Nominal Roll of Those Who Registered  
at the Public Hearing

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Acton Rubber Limited, The, Acton Vale, Que.  
 Barum Co. Ltd., Toronto, Ont.  
 Bata Shoe Company Private Limited, Calcutta, India  
 Bedos & Co. (Canada) Inc., H., Montreal, Que.  
 British Bata Shoe Co. Limited, Tilbury, England  
 British Rubber Co. Limited, The, Montreal, Que.  
 Callaghan, W.J., Ottawa, Ont.  
 Canadian Association of Consumers, Ottawa, Ont.  
 Canadian Importers & Traders Association Inc., Toronto, Ont.  
 Canadian Industries Limited, Montreal, Que.  
 Canadian Labour Congress, Ottawa, Ont.  
 Canadian Manufacturers Association Inc., Toronto, Ont.  
 Canadian Rubber Footwear Information Office, Toronto, Ont.  
 Department of National Revenue, Ottawa, Ont.  
 Department of Trade and Commerce, Ottawa, Ont.  
 Dominion Rubber Company Limited, Montreal, Que.  
 Eaton, T., Co. Limited, The, Toronto, Ont.  
 Elastine Process Development Co., Toronto, Ont.  
 Federation of British Industries, Ottawa, Ont.  
 Firestone Tire & Rubber Company of Canada Limited,  
     Hamilton, Ont.  
 General Footwear Company Limited, Montreal, Que.  
 Goodrich, B.F., Canada Limited, Kitchener, Ont.  
 Goodyear Tire & Rubber Company of Canada Limited, The,  
     New Toronto, Ont.  
 High Commissioner for India, Office of, Ottawa, Ont.  
 Kaufman Rubber (Ontario) Limited, Kitchener, Ont.  
 Lelovic Co. Ltd., Montreal, Que.  
 McDonald, Dave, Shoes Limited, Belleville, Ont.  
 Martin, J.A., Waterloo, Ont.  
 Miner Rubber Company Limited, The, Granby, Que.  
 Rubber Association of Canada, The, Toronto, Ont.  
 Rubber Footwear Manufacturers Association, The,  
     London, England  
 Shoe Manufacturers' Association of Canada, The,  
     Montreal, Que.  
 Schneider, N.C., M.P., Waterloo, Ont.  
 Sparks & May, Ottawa, Ont.  
 Talbot, Rene, Shoe Limited, Quebec, Que.  
 United Kingdom Senior Trade Commissioner, Ottawa, Ont.  
 United Rubber Limited, Toronto, Ont.





EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1957.





Report by  
**THE TARIFF BOARD**

Relative to the Investigation Ordered  
by the Minister of Finance,  
arising out of various requests made  
to him by the producers in Canada of

**WATERPROOF FOOTWEAR**  
**and**  
**RUBBER-SOLED CANVAS FOOTWEAR**

*(Reports 2 and 3)*

**Reference No. 121**







Report by  
**THE TARIFF BOARD**

Relative to the Investigation Ordered  
by the Minister of Finance,  
arising out of various requests made  
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**WATERPROOF FOOTWEAR**  
**and**  
**RUBBER-SOLED CANVAS FOOTWEAR**

***Reference No. 121***

# THE TARIFF BOARD

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B. G. Barrow  
Chief of Research

J. C. Leslie  
Secretary



Ottawa, July 28, 1958.

The Honourable,  
The Minister of Finance,  
Ottawa.

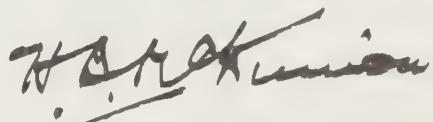
Reference No. 121

Dear Mr. Minister:

In accordance with your direction to the Tariff Board to conduct an inquiry in the matter of the tariff treatment to be accorded Waterproof Rubber Footwear and Rubber-soled Canvas Footwear,

I have the honour to submit herewith, for tabling in Parliament under the provisions of Section 6 of the Tariff Board Act, the second and third Reports of this Board in connection with the above-named Reference, in English and in French. A copy of the transcript of Evidence presented at public hearings accompanies this Report.

Yours faithfully,

  
Chairman





## PREFACE

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In March, 1957, the Tariff Board forwarded to the Minister of Finance its first Report under Reference No. 121: Waterproof Footwear and Rubber-soled Canvas Footwear. That Report contained much theretofore unpublished information regarding the domestic Industry, as well as relevant statistical data respecting production, imports, exports, employment, etc. In view of the fact that the Minister's letter of reference had requested information only, no recommendations as to tariff treatment of imports were made.

Subsequently, the Minister of Finance directed the Board to forward recommendations regarding duties under the provisions of the British Preferential Tariff. While the Board's Report on that revised application was still in the hands of the Queen's Printer, the applicant companies again appealed to the Board, requesting tariff changes in respect of waterproof rubber footwear (tariff item 617) imported under any tariff, as well as changes in respect of canvas footwear of various types and kinds (tariff item 611a (2)) imported under any tariff.

In the circumstances, the Board delayed the release of Report No. 2 on Waterproof Rubber Footwear in order that it might proceed with the more comprehensive third application, which is dealt with herein. That portion of this volume following the divider is the Report (No. 2) which was with the printer when public sittings began in respect of the widened and latest application.

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## THE TARIFF BOARD

Reference No. 121

Being a direction from the Minister of Finance to conduct an Inquiry in respect of the Tariff treatment of Waterproof Rubber Footwear and Rubber-soled Canvas Footwear

The letter from the Minister of Finance, dated October 27, 1956, directing the Tariff Board to conduct the inquiry which has now been the subject of three Reports, was published in full in the first Report (March 14, 1957) and no purpose would be served by again re-producing it.

The circumstances under which Reports Nos. 2 and 3 are contained within a single volume has been set forth in the Preface hereto.

Public sittings of the Board in respect of this Reference have been held, in all, as follows: On December 11, 12 and 13 of 1956, and on March 12 and 13 of 1958. A nominal roll of Companies and Associations which made representations is attached as Appendix B. A transcript of the proceedings at the first-named sittings above was laid on the Table of Parliament on October 25, 1957; a transcript relative to the sittings of March, 1958, accompanies this Report.

### EXISTING TARIFF ITEMS AND RATES

	<u>B.P. Tariff</u>	<u>M.F.N. Tariff</u>	<u>General Tariff</u>
<u>Tariff Item 611a</u>			
(2) Canvas shoes with rubber soles .....	20 p.c.	27½ p.c.	40 p.c.
<u>Tariff Item 617</u>			
Rubber boots and shoes ....	Free	22½ p.c.	25 p.c.

# FINAL REVISED REQUEST BY INDUSTRY

At the public sittings held in March, 1958, the revised tariff treatment sought by the domestic producers was set forth by their representatives as follows:

Tariff Item	<u>B.P. Tariff</u>	<u>M.F.N. Tariff</u>	<u>General Tariff</u>
<u>611a (2) Canvas Shoes with Rubber Soles</u>			
	20 p.c.	27½ p.c.	40 p.c.
In no case shall the duty under the British Preferential, the Most-Favoured-Nation or the General Tariff be less than			
(1) shoes with moulded soles, Men's Sizes 6-12 per pair	\$1.25	\$1.35	\$1.35
(2) shoes with moulded soles, Boys' Sizes 1-5, Women's Sizes 3-10 per pair	1.15	1.25	1.25
(3) shoes with moulded soles, Youth's Sizes 11-13 per pair	1.02	1.10	1.10
(4) shoes with calendered soles, Men's Sizes 6-12 per pair	.92½	1.00	1.00
(5) shoes with calendered soles, Boys' Sizes 1-5, Women's Sizes 3-10 per pair	.88	.95	.95
(6) shoes with calendered soles, Youths' Bals, Sizes 11-13 Children's Bals, Sizes 5-10½ per pair	.69	.75	.75
(7) All other Canvas Shoes per pair	.55	.60	.60
<u>617 Rubber boots and shoes</u>	15 p.c.	22½ p.c.	25 p.c.

In no case shall the duty under the Most-Favoured-Nation or the General Tariff be less than

(1) Light Overs and Sole Rubbers (a) Men's Sizes 6-12, Boys' Sizes 1-5, Women's Sizes 3-10 per pair	40 cts.	40 cts.
(b) All Other Sizes per pair	30 cts.	30 cts.
(2) All other Waterproof Footwear of Rubber with Tops of rubber, fabric, leather or other materials (a) Men's Sizes 6-12, Boys' Sizes 1-5, Women's Sizes 3-10 per pair	95 cts.	95 cts.
(b) All sizes other than above mentioned per pair	75 cts.	75 cts.

## PART I

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In preparing the Report to the Minister of Finance which was in the hands of the Queen's Printer when a revised application was lodged by the domestic producers — and which, as explained in the Preface hereto, is now incorporated in this Report — the Tariff Board gave careful consideration to the solitary request then before it, viz: for the imposition of duties on waterproof rubber footwear imported under the British Preferential Tariff. As will be seen from the relevant portion of this volume, the Board did not find in the evidence then presented justification for so recommending. It should now be stated, at once, that, as a result of the further inquiry necessitated by the filing of more comprehensive requests, the Board sees no sound reason for altering its position in this matter. That is to say: It is unable to recommend any change in the free entry accorded, under the British Preferential Tariff, to imports of waterproof rubber footwear, under tariff item 617.

In so reporting, the Board deems it as no more than fair to the domestic industry to record that, at the close of the latest public hearing, this request for the imposition of duty under the British Preferential Tariff was virtually withdrawn by the spokesman for the domestic producers.

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## PART II

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Spokesmen for the six footwear firms requesting increased duties informed the Board that, in essence, their case for increased protection rested on the following points:

"1. Rubber footwear manufacturers in foreign countries can, and are producing rubber footwear in quality, design and style satisfactory and acceptable to Canadian consumers.

"2. Wage rates account for up to 50 per cent of the manufacturing cost of rubber footwear.

"3. Overseas producers pay greatly lower wages to their employees than Canadian producers.

"4. Therefore the cost of rubber footwear manufactured in these foreign plants is greatly lower than the cost of rubber footwear manufactured in Canada.

"5. As a result, foreign rubber footwear manufacturers can, and do, ship rubber footwear to Canada to sell at prices far below the Canadian Prices."

The industry argued that the above points should support the following conclusions:

"1. Imports entering Canada under present tariffs can and will take more and more of the Canadian market, and

"2. Canadian rubber footwear manufacturers, unable to lower their prices to the level of imports, will sell less and less until they cease to exist in Canada."

In conclusion, representatives of these firms asked the Tariff Board "... to find that the recommended changes in duties are necessary to save the Canadian rubber footwear industry from further damage and ultimate extinction."

The proposals of the six firms were endorsed in general terms by the Canadian Labour Congress.

### How Specific Duties Were Determined:

The domestic producers were asked to explain how they had arrived at the particular minimum specific duties suggested in their brief (as reproduced in the introductory chapter of this report). In part, the explanation given by spokesmen for the industry was as follows:

"The minimum specific duties under the most favoured nation and general tariffs are calculated to raise the landed costs, duties and sales tax paid, on imported shoes to roughly 10 per cent below the factory cost, advanced by  $7\frac{1}{2}$  per cent and plus sales tax, of comparable Canadian shoes.

"Canadian factory costs are actual factory costs, to which has been added 7½ per cent mark-up, and sales tax, but with no allowance for selling or distribution costs or for general administrative expense other than that directly attributable to factory operation for two of the largest Canadian manufacturers."

The significance of the 7½ per cent mark-up, referred to above, was explained as follows: "In a sense it is just insurance that we have a reasonable chance of making a profit possible."

Each proposed minimum specific duty applies to a "range" of footwear, and a considerable variety of types and prices exists within each range. Since, however, only one minimum duty is proposed for each range, the industry obviously had either chosen one particular type of shoe on which to base its calculation or had selected an average value. In explanation of this, the industry stated that within each range it had taken "... a shoe we considered to be closest in quality to the imported shoes..." It was stated also that the imported shoes used in the calculations were always of Hong Kong origin in the case of canvas footwear and of Japanese origin in respect of those of rubber. Certain shoes representing larger volume imports from these two sources were used in making the price comparison. The price differentials between the selected imported footwear and the similar domestic shoes became the basis of the proposed minimum specific duties. Within each range of footwear, specific duties as proposed would apply to each type of footwear therein, imported not only from Hong Kong or Japan, but from any source. In order to obtain a reasonably accurate idea of the height of the proposed duties in relation to prices of imported footwear, the Board asked the industry to supply actual invoice values of typical varieties of imported footwear. A spokesman for the industry emphasized the difficulty of attempting to make a general statement regarding the level of a specific duty in relation to a duty applicable to a variety of prices, depending on type, size and source; there probably would be differences in prices of similar types of footwear from the same foreign source, as well as from different suppliers at the same source. However, the industry submitted information showing how its proposed duties would affect the prices of footwear which had actually been imported into Canada. These are shown in Table V; in digest form the proposed changes would have effect as follows —

Existing and Proposed Duties Related to Imports

<u>Type of Footwear</u>	<u>Actual Invoice Value (\$ pair)</u>	<u>MFN Duty</u>		<u>Increase in Overall Landed Cost (P.C.)</u>
		<u>Exist.</u>	<u>Prop.</u>	
		(as P.C. of invoice value)		

(Actual values for imports from Hong Kong)

1. Men's Molded Sole	.74	27½	182	111
2. Boy's Molded Sole	.68	27½	184	114
3. Men's Calendered Sole	.61	27½	164	98
4. Boy's Calendered Sole	.55	27½	173	102
5. Youth's Calendered Sole	.50	27½	150	88
6. Little Gent's Cal. Sole	.44	27½	170	103
7. Misses' Oxford Cal. Sole	.31	27½	191	119
8. Children's Cal. Sole	.26	27½	228	141



Existing and Proposed Duties Related to Imports (cont'd)

<u>Type of Footwear</u>	Actual	MFN Duty		Increase
	Invoice	Exist.	Prop.	in Overall
	<u>Value</u>			Landed
	(\$ pair)	(as P.C. of	invoice value)	Cost
				(P.C.)
(Actual values for imports from Japan)				
Men's Strap Cuff Boot	1.46	22½	65	25
Boy's Strap Cuff Boot	1.32	22½	72	31
Jr. Strap Cuff Boot	1.00	22½	75	34
Children's Strap Cuff Boot	.97	22½	77	38
Men's Low Cut Rubber	.57	22½	70	32

Increases in Landed Costs:

The above table shows that the duties proposed for canvas footwear range from 150 to 228 per cent of the invoice values of the particular types of footwear described in the table, which are, in the opinion of the industry, the types entering in greatest quantity from Hong Kong. The duties proposed range from 65 to 77 per cent of the invoice value of Japanese waterproof footwear.

In terms of landed costs — somewhat more closely related to the ultimate retail prices the consumer must pay — imported canvas footwear would be twice as costly under the proposed rates, while imported waterproof rubber would be about one-third more costly.

Two of the larger firms in the Canadian rubber footwear industry were asked to submit figures showing the number of pairs of footwear sold by them, segregated by types, as in the table immediately above. If the sales of these two firms are representative of those of the industry as a whole, the bulk of sales comprises the varieties represented in types 1, 4, 7 and 8 of the table. From the evidence, it would appear that the greater portion of imports also falls into these classes.

Opposition to the proposed increases in rates was registered by Canadian importers; by British, Indian and Hong Kong suppliers; by one domestic retailer, and by the Canadian Association of Consumers.

One importer, who is both a manufacturer and a retailer of footwear, informed the Board that it had been his experience that whenever the prices of canvas shoes increased, consumers tended to switch their purchases to leather footwear. A substantial increase in prices of the canvas product might result therefore in fewer canvas shoes being sold. Such a development could adversely affect not only imports but also sales by domestic producers. In illustrating this point, the witness estimated that an imported boy's canvas shoe, selling at present at retail for \$1.69, would be priced at \$3.65 (inclusive of the higher duty). At the latter price, the canvas shoe would be competing with leather shoes.



A representative of Indian export interests emphasized that the trade conducted by the Indian canvas footwear producers with Canada was a two-way street. Purchases in Canada of synthetic rubber by these Indian firms for use in their operations exceeded the total value of their footwear sales to Canada. It was contended that loss of the Canadian market would make it difficult for these producers to continue purchasing synthetic rubber in Canada.

Representations from Hong Kong, by documents, stated that the Colony has few tariffs, that it is an open dollar market, and that Canadian goods may be imported into Hong Kong without restriction. This policy has encouraged the export of a wide variety of Canadian manufactured goods to Hong Kong. Among such are motor vehicles which, the brief stated, are exempt, as are other Commonwealth vehicles, from a 15 p.c. registration fee. Canada does not extend preferential tariff rates to imports from Hong Kong. In 1957, Canadian exporters to Hong Kong exceeded imports by a small amount, and the brief stressed that the introduction of high duties by Canada against goods from Hong Kong would pose serious problems for the Colony.

### PART III

This section brings up to date statistical material included in earlier reports re production, volume and sources of imports, etc. It does not attempt to traverse again the ground covered in these earlier reports in respect of factual material.

#### Domestic Shipments of Footwear:

Overall shipments of footwear fell sharply in Canada in 1957 — by more than a million and a half pairs below the 1956 level:

#### Domestic Shipments of Rubber, Canvas and Plastic Footwear (‘000 pairs)

	<u>1956</u>	<u>1957</u>
Entirely of Rubber	9,224	7,513
Part Rubber	1,363	1,074
Canvas (utility)	1,831	2,062
Plastic	<u>3,333</u>	<u>3,503</u>
Total	15,751	14,152

Source: Dominion Bureau of Statistics

In the annual report for 1957 of the Manager and Secretary of The Rubber Association of Canada, two factors were mentioned as bearing upon this matter:

"The continuation of severe and damaging import competition..." and,

"The unusual combination of weather conditions unfavourable to the sale of waterproof rubber footwear which caused sales to fall to the lowest level experienced in post-war years."

The latter statement is borne out by the statistics, which show that sales of domestic footwear entirely of rubber and of part rubber declined sharply in 1957. These types are the waterproof and the "warm" varieties of footwear usually worn during cold or wet weather. It is interesting to note, however, that plastic footwear — used in both wet and moderately cold weather — continued to show a sales increase, in spite of the adverse effect of weather on competing types of footwear. In this regard, it is interesting to compare the decline in sales of "rubbers", "overshoes" (entirely of rubber) and "overshoes and galoshes with cloth uppers" with the continued expansion in sales of competing plastic shoes (see tables for figures). It appears probable that plastic footwear is continuing to displace some sales of the above-mentioned older types of rubber footwear. This would account, however, for only a small part of the very substantial decline in sales of rubber shoes during 1957. The unfavourable weather referred to in the Rubber Association report was probably

a more important cause of such decline.

While mild weather in 1957 proved to be detrimental to the production and sales of rubber footwear, it appears to have had a bolstering effect on sales of canvas (utility) footwear, sales of domestic manufacture showing an increase from 1,831,000 pairs in 1956 to 2,062,000 pairs in 1957.

During the first five months of 1958, domestic production of rubber, part-rubber and plastic footwear was sharply lower than during the same period in 1957. In part, this reflects a heavy inventory carry-over from the previous year. Figures available to the Board show that inventories of rubber footwear in the hands of producers during the month of December, 1957, were well above the average of inventories held in December of most previous years. A comparison of output (not shipments) is as follows:

Rubber, Part Rubber and Plastic Production  
( '000 pairs)

	<u>1957</u> (January-May, inclusive)	<u>1958</u>
Entirely of Rubber	3,200	2,859
Part Rubber	257	204
Plastic	1,328	852

Source: Dominion Bureau of Statistics

To sum up briefly, domestic production was down in 1957, a reduced level of output continued into the first five months of 1958, the rate of output being well below that of even 1957. As stated earlier, the Industry blames this development on imports and on adverse weather conditions.

Imports of Footwear:

During the past two years, imports of rubber footwear have decreased, as the figures below show:

Imports of Rubber Footwear  
( '000 pairs)

<u>1955</u>	<u>1956</u>	<u>1957</u>
1,151	1,047	855

Source: Dominion Bureau of Statistics

Because of this decrease, the share of imports in the Canadian market for rubber and part rubber footwear declined, from 9.65 p.c. in 1955 to 9.12 p.c. in 1957. However, during the period January to March, 1958, the volume of imports has shown an increase



over the same months in 1957: from 192,000 pairs to 274,000 pairs. Although this is a very short period on which to base any conclusion, it would appear that imports may be on the upturn, while domestic output has continued to decline. If these trends should continue throughout 1958, Canadian producers may well, for the first time, supply less than 90 p.c. of the Canadian requirements of rubber footwear.

The most notable feature of imports is the apparent displacement, by Japan, of United Kingdom sales in the Canadian market. In 1955, the United Kingdom sold to Canada 665,000 pairs; Japan, 29,000 pairs. In 1957, the United Kingdom sold 355,000 pairs and Japan 324,000 pairs.

As for canvas or utility footwear, imports decreased during the years 1955-1957:

Imports of Canvas Footwear  
(<sup>1</sup>000 pairs)

<u>1955</u>	<u>1956</u>	<u>1957</u>
2,510	2,414	2,038

Source: Dominion Bureau of Statistics

The result of this decline is that, in 1957, Canadian suppliers again held half of the domestic market, as compared with 45.24 p.c. in 1955 and 43.06 p.c. in 1956.

An examination of imports of canvas footwear during the first three months of 1958 would indicate, however, that the downward trend has now been reversed. During the months of January, February and March of 1958, imports of canvas footwear totalled 976,000 pairs, as compared with 792,000 pairs during the same months of 1957. Domestic production of canvas footwear increased very slightly during these months in 1958, as compared with the same months in 1957: from 896,000 pairs to 902,000 pairs. As mentioned previously, trends for so short a period may not be representative of an entire year or even of a complete season.

Financial Position of Producers:

Spokesmen for the Canadian footwear producers stated that without a reasonable share of the market for the more staple types of canvas or utility footwear they cannot make a profit on footwear as a whole. The highly-specialized types, such as basketball shoes, in which they have retained the market, cannot — they contend — be manufactured economically unless costs are shared with a large output of staple types.

With respect to rubber footwear, the industry stated "... Canadian prices on the volume types of waterproof rubber footwear particularly hit by imports do not show a profit". This statement is somewhat difficult to evaluate in that imports, by value, have seldom

exceeded 5 p.c. of the total value of sales in the Canadian market. While imported rubber footwear may well have a depressing effect on the prices of competing domestic footwear, the scale of such competition would appear to be limited in scope.

Because the same facilities are used to a considerable extent in the production in Canada of both rubber and canvas footwear, the profitableness of any one type cannot be determined without resort to a number of arbitrary decisions respecting the allocation of common costs. The producers were asked, therefore, to supply the Board with financial data — not entailing a breakdown of the various types of footwear, sales of which had been reported to the Dominion Bureau of Statistics as follows for 1957:

<u>Type</u>	<u>Pairs</u>	<u>Value</u> \$	<u>P.C. of Total</u> <u>Value</u>
Entirely of Rubber	7,513,000	19,323,000	62.34
Part Rubber	1,074,000	4,579,000	14.77
Plastic	3,503,000	3,218,000	10.38
Canvas	<u>2,062,000</u>	<u>3,872,000</u>	<u>12.49</u>
Total	14,152,000	30,992,000	99.98

Four of the larger producers of footwear showed profits on footwear operations in 1957. In the case of three of these, profits ranged from better than 3 p.c. to more than 4 p.c. of the value of sales (before taxes but after depreciation). In the case of two firms, losses were incurred on footwear operations. In one instance these were substantial; in the other, small.

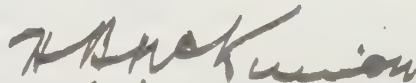
## CONCLUSIONS

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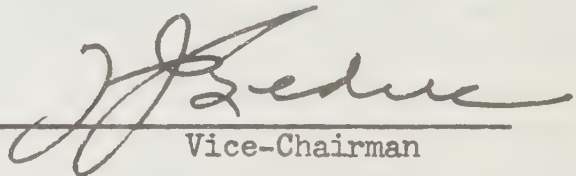
1. As intimated in Part I hereof, the Tariff Board reiterates the conclusion it had set down in an earlier Report, namely, that it is not prepared to recommend the imposition of duties, under the British Preferential Tariff, on rubber boots and shoes imported under tariff item 617.

2. Equally, it is not persuaded on the evidence submitted that it would be warranted in recommending the specific duties requested by the Industry in respect of (a) rubber boots and shoes imported under tariffs other than the British Preferential Tariff or (b) rubber-soled canvas footwear imported under any tariff. As regards the products under both (a) and (b) above, the Industry was quite frank in admitting at the public sittings that the rates of duty it sought were "of a completely different order of magnitude to any which are normally recommended by this Board".

3. In conclusion, the Board is not prepared to recommend any changes in wording or rates of duty in respect of either of tariff items 611a(2) or 617.



Chairman



Vice-Chairman



Vice-Chairman



Member



Production of Waterproof Footwear  
(<sup>1</sup>000 pairs)

Entirely of Rubber

<u>Year</u>	<u>Boots - knee and hip</u>	<u>Boots - lumbermen's</u>	<u>Overshoes</u>	<u>Rubbers</u>	<u>Total</u>
1955	1,629	528	3,518	3,850	9,525
1956	1,539	532	4,053	3,100	9,224
1957	1,092	342	3,532	2,547	7,513
1958 (Jan-Apr.)	474	70	777	918	2,238

Part Rubber

<u>Year</u>	<u>Rubber bottoms and leather tops</u>	<u>Rubber bottoms for leather tops</u>	<u>Overshoes and galoshes cloth uppers</u>	<u>Total</u>
1955	138	205	1,059	1,402
1956	157	259	947	1,363
1957	155	212	707	1,074
1958 (Jan.-Apr.)	31	54	38	123

Plastic

<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u> (Jan.-Apr.)
1,707	3,333	3,503	814

Source: Dominion Bureau of Statistics.

TABLE II

Imports of Canvas and Rubber Footwear, 1957  
(<sup>1</sup>000 omitted)

<u>Source</u>	<u>Pairs</u>	<u>Value</u>	<u>Value per Pair</u> dollars
<u>CANVAS</u>			
United Kingdom	55	40	.73
India	282	129	.46
Hong Kong	1,521	705	.46
Japan	111	42	.38
China	2	1	.50
United States	23	51	2.22
Other	44	18	.41
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Total	2,038	986	.48
<u>RUBBER, N.O.P.</u>			
United Kingdom	355	586	1.65
Czechoslovakia	138	136	.99
Japan	324	249	.77
Poland	3	3	1.00
China	-	-	-
Hong Kong	6	5	.83
United States	20	40	2.00
Other	9	24	.27
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Total	855	1,043	1.22

Source: Dominion Bureau of Statistics.

TABLE III

Imports of Canvas and Rubber Footwear  
(<sup>1</sup>000 omitted)

Source	<u>1955</u>		<u>1956</u>		<u>1957</u>		<u>1958<sup>1</sup></u>	
	Pairs	P.C.	Pairs	P.C.	Pairs	P.C.	Pairs	P.C.
<u>CANVAS</u>								
United Kingdom	119	4.7	153	6.3	55	2.7	30	3.1
India	351	14.0	466	19.3	282	13.8	77	7.9
Hong Kong	1,980	78.9	1,648	68.3	1,521	74.7	651	66.8
Japan	25	1.0	103	4.3	111	5.4	187	19.2
China	-	-	-	-	2	0.1	10	1.0
United States	15	0.6	24	1.0	23	1.1	7	1.0
Other	20	0.8	20	0.8	44	2.2	14	1.0
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Total	2,510	100.0	2,414	100.0	2,038	100.0	976	100.0
<u>RUBBER, N.O.P.</u>								
United Kingdom	665	57.8	507	48.4	355	41.5	128	46.7
Czechoslovakia	155	13.5	252	24.1	138	16.1	69	25.2
Japan	29	2.5	142	13.6	324	37.9	55	20.1
Poland	-	-	17	1.6	3	0.4	-	-
China	-	-	-	-	-	-	-	-
Hong Kong	215	18.7	55	5.2	6	0.7	16	5.8
United States	59	5.1	29	2.8	20	2.3	4	1.5
Other	28	2.4	45	4.3	9	1.1	2	0.7
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Total	1,151	100.0	1,047	100.0	855	100.0	274	100.0

<sup>1</sup>Period covered January to March, inclusive.

Source: Dominion Bureau of Statistics.



TABLE IV

Domestic Disappearance of Footwear  
(<sup>'</sup>000 pairs)

<u>Year</u>	<u>Production</u>	<u>Exports</u>	Production - Home <u>Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as P.C. of D.D.</u>
<u>Utility (canvas or other fabric tops)</u>						
1955	2,079	6	2,073	2,510	4,583	54.76
1956	1,831	6	1,825	2,414	4,239	56.94
1957	2,062	4	2,058	2,038	4,096	49.75
<u>Rubber and Part Rubber</u>						
1955	10,927	142	10,785	1,152	11,937	9.65
1956	10,587	158	10,329	1,047	11,376	9.65
1957	8,587	74	8,513	855	9,368	9.12
<u>Waterproof (rubber, part rubber and plastic)</u>						
1955	12,634	142	12,492	1,152	13,644	8.44
1956	13,920	158	13,762	1,047	14,809	7.07
1957	12,090	74	12,016	855	12,871	6.64

Source: Dominion Bureau of Statistics.

Comparison of Existing Duties with those Proposed by Industry  
(dollars per pair)

Type	Actual Invoice Value	Duty EXIST.* PROP.**	Ad. Val. Proposed p.c.	Freight and Insurance	Total		Sales Tax EXIST.* PROP.**	Landed Cost			
					EXIST.* PROP.**	EXIST.* PROP.**		EXIST.* PROP.**	EXIST.* PROP.**		
(Canvas footwear from Hong Kong)											
Men's Molded Sole	.74	.20	1.35	182	.10	1.04	2.19	.10	.22	1.14	2.41
Boy's Molded Sole	.68	.19	1.25	184	.09	.96	2.02	.10	.20	1.06	2.22
Men's Calendered Sole	.61	.17	1.00	164	.08	.86	1.69	.09	.17	.95	1.86
Boy's Calendered Sole	.55	.15	.95	173	.07	.77	1.57	.08	.16	.85	1.73
Youth's Calendered Sole	.50	.14	.75	150	.065	.70	1.32	.07	.13	.77	1.45
Little Gent's Cal. Sole	.44	.12	.75	170	.06	.62	1.25	.06	.125	.68	1.38
Misses Oxford Cal. Sole	.31	.09	.60	194	.04	.44	.95	.04	.095	.48	1.05
Children's Cal. Sole	.26	.07	.60	231	.03	.36	.90	.04	.09	.40	.99
(Waterproof footwear from Japan)											
Men's Strap Cuff Boot	1.46	.33	.95	65	.67	2.46	3.08	.25	.31	2.71	3.39
Boy's Strap Cuff Boot	1.32	.30	.95	72	.46	2.08	2.73	.21	.27	2.29	3.00
Jr. Strap Cuff Boot	1.00	.23	.75	75	.32	1.55	2.07	.155	.21	1.70	2.28
Children's Strap Cuff Boot	.97	.22	.75	77	.21	1.39	1.93	.14	.19	1.53	2.12
Men's Low Cut Rubber	.57	.13	.40	70	.15	.85	1.12	.085	.11	.93	1.23

\*Existing rate

\*\*Rate proposed by Industry

Nominal Roll of Companies and Associations  
which made Representations

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Acton Rubber Limited, The, Acton Vale, Que.  
Barum Company Limited, Toronto, Ont.  
Bata Shoe Company Private Limited, Calcutta, India  
British Bata Shoe Company Limited, The, East Tilbury, England  
British Rubber Company Limited, The, Montreal, Que.  
Canadian Association of Consumers, Ottawa, Ont.  
Canadian Importers & Traders Association Inc., Toronto, Ont.  
Canadian Labour Congress, Ottawa, Ont.  
Dominion Rubber Company Limited, Montreal, Que.  
General Footwear Company Ltd., Montreal, Que.  
Hong Kong Exporters' Association, The, Hong Kong  
Hong Kong General Chamber of Commerce, The, Hong Kong  
Hong Kong Rubber Manufacturers' Association, The, Kowloon, Hong Kong  
Kaufman Rubber (Ontario) Limited, Kitchener, Ont.  
McDonald, Dave, Shoes Limited, Belleville, Ont.  
Miner Rubber Company Limited, The, Granby, Que.  
Rubber Footwear Manufacturers Association, London, England  
United Rubber Limited, Toronto, Ont.









**THE TARIFF BOARD**  
**CANADA**

**Reference No. 121**

**WATERPROOF AND RUBBER-SOLED**  
**CANVAS FOOTWEAR**





# THE TARIFF BOARD

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H.B. McKinnon	Chairman
F.J. Leduc	Vice-Chairman
W.W. Buchanan	Vice-Chairman
G.A. Elliott	Member

---

B.G. Barrow  
Chief Economist

J.C. Leslie  
Secretary

Ottawa, November 18, 1957

The Honourable,  
The Minister of Finance,  
Ottawa

Dear Mr. Minister:

Reference No. 121

In accordance with your direction to the  
Tariff Board to submit to you a Supplementary Report in  
respect of Waterproof Footwear and Rubber-Soled Canvas  
Footwear,-

I have the honour to transmit herewith,  
for tabling in Parliament under the provisions of Section 6  
of the Tariff Board Act, the Supplementary Report of this  
Board in connection with the aforesaid Reference, in English  
and in French.

Yours faithfully,

  
Chairman





THE TARIFF BOARD

—

Reference No. 121

Waterproof and Rubber-Soled Canvas Footwear

SUPPLEMENTARY REPORT

—

On October 29, 1956, the then Minister of Finance sent to the Tariff Board, for inquiry and report, Reference No. 121, re Waterproof Footwear and Rubber-Soled Canvas Footwear, directing the Board to secure all available information but not asking for specific recommendations as to the tariff treatment that should be accorded such footwear. In compliance with those instructions, the Board forwarded to the Minister its Report on Reference No. 121, dated March 14, 1957.

The Board has now been requested by the Minister of Finance to make a further Report in the same matter and to include therein "recommendations ... regarding the retention or modification of the present duties in respect of waterproof footwear and rubber-soled canvas footwear".

This further Report should be regarded therefore as a Report (Supplementary) in respect of Reference No. 121. It contains such new or additional information as has become available since the date of the original Report. It should be stated that no public hearing has been convened in connection with the preparation of the Supplementary Report, which necessarily should be read in conjunction with the Board's earlier submission above referred to.

Certain of the statistical data included in the Report of March, 1957, have been brought up to date, and since these will have a bearing upon such recommendations as are made herein, tabular statements (as revised) are incorporated as Appendix D hereto.

TERMS OF REFERENCE GOVERNING THIS  
SUPPLEMENTARY REPORT

—

Following is the text of the letter from the Minister of Finance ordering the present inquiry:

Minister of Finance  
Canada

Ottawa, September 9, 1957.

Mr. H.B. McKinnon,  
Chairman,  
The Tariff Board,  
Ottawa, Ont.

Dear Mr. McKinnon:-

The Tariff Board recently submitted a report on Reference No. 121 respecting the production, consumption, marketing, imports and exports of waterproof footwear and rubber-soled canvas footwear. In this Reference the Tariff Board was not asked for, and did not make, any recommendations.

In considering this matter I believe it would be useful to have recommendations from the Board. Accordingly, pursuant to Section 4(2) of the Tariff Board Act, I direct the Tariff Board, on the basis of the evidence which it obtained relating to Reference No. 121, to submit to me a supplementary report including any recommendations which it may deem warranted regarding the retention or modification of the present duties in respect of waterproof footwear and rubber-soled canvas footwear.

I would not consider it necessary or advisable for the Board to conduct any further hearings on this matter, but the Board is not precluded from taking account of any new statistical or other factual information which it deems relevant. In this connection I enclose, for your information, copy of a submission which was made to me on August 28, 1957, by Canadian Rubber Footwear Companies and the Canadian Labour Congress.

Yours very truly,

DONALD M. FLEMING

With his letter directing the Tariff Board to prepare a Supplementary Report (embodying recommendations), the Minister of Finance forwarded, for the Board's information, a copy of a joint-submission which had been presented to him on August 28, 1957, by

the applicant Companies and the Canadian Labour Congress. This submission was embodied, in turn, in a document filed with the Board on September 27, 1957, by the six domestic manufacturers concerned in this inquiry: The Acton Rubber Limited, Acton Vale, Que.; The British Rubber Company Limited, Montreal, Que.; Dominion Rubber Company Limited, Montreal, Que.; Kaufman Rubber Company Limited, Kitchener, Ont.; The Miner Rubber Company Limited, Granby, Que.; and United Rubber Limited, Toronto, Ont. The joint-submission, signed by executives of the industry, is reproduced in full and incorporated herein as Appendix A. Very briefly, what the joint-submission described as "the measures which we have requested of the Government" were as follows:

1. The fixation of values for duty on waterproof rubber footwear and rubber-soled canvas footwear not entitled to enter under the British Preferential or any lower tariff at 90 per cent of the average all-in costs ... of the three lowest-cost Canadian producers of comparable lines; or

alternatively:

that tariff items 611a(2) and 617 be amended ... by provisos that the values for duty of such footwear not entitled to enter under the British Preferential or any lower tariff be fixed by the Minister of National Revenue on the basis of Canadian costs, as may be determined by the said Minister and that such fixed values be deemed the fair market value; and

2. That tariff item 617 be amended to re-impose a duty of 15 per cent ad valorem under the British Preferential Tariff on waterproof rubber footwear.

Of the requests as set down in the joint-submission, the Board is able to regard only one as coming within the Terms of Reference set forth in the letter of September 9 from the Minister of Finance, viz.: That requesting the imposition of a duty of 15 per cent ad valorem on waterproof rubber footwear imported under the British Preferential Tariff appertaining to tariff item 617, which item reads as follows:

Rubber boots and shoes:	Free	22½ p.c.	25 p.c.
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REPRESENTATIONS BY IMPORTERS

1. On October 7, 1957, there was filed with the Board a document (see Appendix B), signed by three importers of footwear: Rene Talbot Shoe Ltd., Quebec, Que.; General Footwear Company, Ltd., Montreal, Que.; and Dave McDonald Shoes Limited, Belleville, Ont. The document in question was a copy of a submission which had been presented by these importers to the Minister of Finance, on October 3, 1957, and which they requested should be considered by the Tariff Board in connection with the preparation of this Supplementary Report.

After an analysis of the imports situation, these importers stated (1) that domestic canvas footwear had now reached a price in Canada (cited as \$3.99 to the consumer) where it had become competitive with leather footwear; (2) that they agreed, as a group, with an observation by the Board, in its Report of March, 1957, to the effect that imports of canvas footwear were catering to a market in Canada which could not afford to purchase the domestic products; (3) that there were hazards inherent in trading with Asiatic countries - hazards which they as importers must assume; (4) that the Canadian export trade had been disappearing since 1949, due primarily to the progressively-increasing prices charged for the Canadian product; and (5) that, in their opinion, the higher production costs of Canadian producers were due to "the demands placed upon the Industry by Labor Unions". As stated above, the full text of the representations by the importers named has been incorporated herein as Appendix B.

2. Under date of October 3, 1957, the Canadian Importers and Traders Association, Inc., Toronto, memorialized the Board, urging "that no increase in duty be recommended and certainly no arbitrary value for duty purposes be established". Conceding that the domestic footwear was "superior in quality", the brief argued that consumers in the low-income groups should not be denied the opportunity to purchase (such) low-cost imported footwear as they could afford. In view of the small degree to which rubber footwear of United Kingdom origin catered to the Canadian market, the Association made specific reference to the applicants' request re tariff item 617 and urged that it should not be granted. For full text of the brief by this Association, see Appendix C hereto.

FACTUAL INFORMATION FURTHER TO THAT  
AVAILABLE IN MAIN REPORT

The statistical data included in the textual portions (and in the tables) of the main Report — relative to imports, exports, production, prices, employment, etc. — were the latest then available from official sources. As that Report was dated March, 1957, much of the statistical material that could be quoted with reasonable assurance as to its complete accuracy related to the year ending December 31, 1955; in many instances, the Bureau of Statistics provided preliminary or estimated data for either six or nine months of the year 1956.

In the interim, some of these latter preliminary statistics have been revised and are now available as "final" figures for 1956. In addition, the Board has had recourse, on this occasion, to preliminary data respecting a portion of the calendar year 1957 — in most instances, the first seven months. In the following textual sections will be found such comment as the Board feels justified in making as regards this more-recent statistical material, the detail of which constitutes the revised tables forming Appendix D hereto.

DOMESTIC PRODUCTION

In 1956, the total number of pairs of all types of footwear manufactured by rubber-footwear producers increased by one million pairs — to 15,751,000 pairs as compared with 14,713,000 pairs in 1955. This was approximately 3 million pairs more than were produced in 1954, the year of least output during the past decade. The year 1956 was also the year of greatest output since the immediate post-war years (see Appendix D). In terms of value of output, 1956 showed the highest return since 1952; it was, however, well below that of 1951, when almost the identical number of pairs was valued at \$43 million, as compared with \$36.5 million in 1956. The explanation, in part at least, lies in the change in the kinds of footwear produced.

As was noted in the Board's previous report, the manufacturers have been shifting production from footwear in part of rubber to footwear made of plastic substances. This latter product is popular with the public — perhaps because it is relatively inexpensive and is attractive in appearance. There was no production of plastic footwear in Canada in 1951; by 1956, output was well in excess of three million pairs. It would appear that this very notable increase in production of plastic footwear has been at the expense of "rubber" and "part-rubber" waterproof footwear. The output of rubber footwear has barely held its own in recent years while that of part-rubber has declined considerably. In the opinion of the Board, there can be no doubt that plastic footwear does, in fact, compete directly with light rubber and part-rubber footwear. This trend



in usage continued into 1956, with the result that, in that year, plastic footwear production increased by 1,626,000 pairs over that of 1955, while output of all-rubber footwear decreased by 301,000 pairs and that of part-rubber by 39,000 pairs. The result is a net gain of 1,286,000 pairs in "waterproof" footwear (i.e. - rubber and plastic).

Output of utility or canvas footwear reached a new low in 1956 of 1,831,000 pairs. This was 248,000 pairs below that of 1955 and about half the production of 1951. During the first seven months of 1957, the downward trend appears to have been reversed, output being at a considerably higher level than during the same months of the previous two years:

Production of Canvas (Utility) Footwear  
(Jan. to July, inclusive)

<u>pairs</u>		
<u>1955</u>	<u>1956</u>	<u>1957</u>
1,337,924	1,008,183	1,603,000

In immediately previous years, from 55 to 62 p.c. of annual output was completed during the first seven months of each year.

Production of rubber (waterproof) footwear is down in seven months of 1957, as compared with the same period in 1956:

Production of Rubber and Part-Rubber Footwear  
(Jan. to July, inclusive)

<u>pairs</u>	
<u>1956</u>	<u>1957</u>
5,450,642	4,706,000

It is understood from the industry that heavy inventories, resulting from reduced sales during the past year due to climatic conditions, account partially for the lower levels of output. In 1956, approximately half of the total output for the year was manufactured during the first seven months. It is believed that the rate of production for the remainder of 1957 will depend to a considerable extent on the weather.

IMPORTS

As noted in the Board's earlier report, imports of canvas footwear increased from negligible quantities, prior to 1951, to 2,510,000 pairs in 1955 - 54.76 p.c. of apparent domestic disappearance.



Subsequent trade returns show that imports continued at a high level throughout 1956, amounting to 2,413,000 pairs — or 56.94 p.c. of domestic disappearance. Imports have declined sharply during the first seven months of 1957, to 1,358,000 pairs, as compared with 2,199,000 pairs for the same period in 1956, and 1,865,000 pairs in 1955. Since the greater part of imports of canvas footwear appears in the past to have entered during the first seven months of each year, it would seem that total imports in 1957 will be below previous peaks.

In commenting on this decrease in imports in 1957, canvas footwear producers have stated in their supplementary brief to the Board that "... the fact that import statistics showed a decline in imports ... might lead to the conclusion that the menace to our industry has receded. In stating that this would be a serious misapprehension we are, of course, basing this conclusion on those fundamental factors of labour — cost differentials, long-term trends, etc. ...." Further in the brief, it is stated: "In regard to canvas footwear, we have learned that orders of low-wage imports have now been placed in such volume that when official statistics on the first quarter of 1958 are available they will show a resumption of the long-term upward trend of imports. Obviously we do not have, as a group, statistical information on this to give you but we have confidence that this general statement is reliable." In absence of actual trade statistics, the Board is not in a position to comment on this prediction.

For the first time, imports of canvas footwear from China were recorded in the seven-month period ending July, 1957. The amounts were small — about 2,000 pairs valued at about 50 cents per pair — but the item is of interest as concerns the first appearance on the Canadian market of Chinese products in this line. The Board has seen samples of these imports and is of opinion that, in so far as apparent quality is concerned, they should be ranked with the best coming from any foreign supplier.

#### Canvas

##### Average Value of Imports, by Countries:

(dollars)

	<u>7 mos., 1955</u>	<u>7 mos., 1956</u>	<u>7 mos., 1957</u>
United Kingdom	.49	.62	.73
India	.47	.51	.45
Hong Kong	.53	.52	.49
Japan	-	.55	.38
United States	1.09	1.22	.95

Like canvas footwear, imports of rubber and part-rubber waterproof footwear increased from small quantities in 1949 to 1,152,000 pairs in 1955. Imports of plastic footwear have been and are negligible. Unlike canvas, however, imports of rubber waterproof have never accounted for a major portion of domestic disappearance of that kind of footwear, amounting to less than 10 p.c. even in 1955. Import statistics for 1956, now available for the entire year, show a

total of 1,047,000 pairs of rubber waterproof footwear — a slight decline from 1955. In terms of rubber and part-rubber waterproof footwear available on the market, imports in 1956 accounted for 9.12 p.c., the remainder (90.88 p.c.) being supplied by Canadian producers.

During the first seven months of 1957, imports of rubber and part-rubber waterproof footwear were down considerably, as compared with the same months in 1955 and 1956:

Imports of Rubber Footwear  
(Jan. to July, inclusive)  
( '000)

<u>1955</u>		<u>1956</u>		<u>1957</u>	
pairs	\$	pairs	\$	pairs	\$
497	594	489	650	305	397

Imports of rubber and part-rubber during the first seven months of 1957 amounted to only 6.13 p.c. of domestic disappearance, compared with 8.33 p.c. for the same period in 1956. The domestic industry thus appears to have increased its share of the market for rubber and part-rubber waterproof footwear to approximately 94 p.c. of the total during 1957, to the end of July. Imports of waterproof footwear capture, of course, an even smaller share of the Canadian market for all types of waterproof footwear — that is, plastic, rubber and part-rubber.

A significant development, noted in the previous report, is the fact that Japanese imports are expanding, at the expense of the United Kingdom as well as of other competing countries.

Relative to imports of rubber and part-rubber footwear (pairs only), the following tables are of interest:

Shares of Total Imports, by Countries:  
(per cent)

	<u>7 mos., 1955</u>	<u>7 mos., 1956</u>	<u>7 mos., 1957</u>
United Kingdom	58.55	55.41	51.47
Hong Kong	14.68	10.42	.65
Czechoslovakia	19.11	20.85	13.44
Japan	-	5.93	29.83

Average Value of Imports, by Countries:  
(dollars)

	<u>7 mos., 1955</u>	<u>7 mos., 1956</u>	<u>7 mos., 1957</u>
United Kingdom	1.30	1.59	1.59
Hong Kong	.81	.84	1.00
Czechoslovakia	1.00	1.00	1.00
Japan	-	.66	.74



Canadian waterproof footwear producers made the following additional comment to the Board:

"In regard to waterproof rubber footwear there has, of course, been a decline in imports but it should be noted that during the period January to June, 1957, Canadian sales have also experienced a substantial decline due to the unusually mild weather conditions which prevailed in the late winter and early spring months across Canada."

#### EXPORTS

Exports of both canvas and rubber and part-rubber (waterproof) footwear have been negligible in recent years. In 1956, only 6,000 pairs of canvas footwear were exported, largely to the United Kingdom; exports of rubber footwear totalled 158,000 pairs (1.5 p.c. of output), of which 131,000 pairs were shipped to the United Kingdom. During 1955, exports of canvas footwear had been 6,000 pairs and those of rubber, 142,000 pairs. Exports to the United Kingdom are restricted to quotas established under the "Token Import Scheme" but in recent years only a small part of the quota has been used by the Canadian producers.

#### UNEMPLOYMENT

Official statistics are not available showing employment in rubber footwear production. It has been possible, however, to obtain figures for net unemployment in the entire rubber products industry (net unemployment is defined as the number of unemployed workers in excess of unfilled vacancies in the rubber products industry). On pages 29-31 of the Board's previous report, it is pointed out that while employment in the footwear sector of the industry declined by approximately 2,000 workers between 1947 and 1956, there was little net unemployment at the end of 1956 — a total of 115 persons for three of the towns where output is centered.

Subsequent information shows that on September 1, 1957, net unemployment of all rubber workers had increased to 420 in the same three towns, a net increment of 305 over December 1, 1956. Compared with September, 1956, net unemployment had increased by 375. While there has been an increase in net unemployment during 1957, the numbers unemployed did not exceed those prevailing on selected dates in 1952, 1954 and 1955. In other words, the current level of net unemployment is closely related to that in past years.



In the three towns for which net unemployment figures are available, the net unemployment of all rubber workers is small in relation to total net unemployment in the case of two towns, Kitchener and St. Jerome. In Granby, however, unemployed rubber workers make up almost half of total net unemployment.

Net Unemployment, September 1957

<u>Granby</u>		<u>St. Jerome</u>		<u>Kitchener</u>	
All Rubber	Total	All Rubber	Total	All Rubber	Total
305	704	46	615	69	1,612

As regards higher levels of net unemployment generally, officials in the rubber footwear industry stated that inventories in 1957 were high, resulting from lower levels of sales in 1956-57 — attributable to unfavourable weather conditions for footwear producers (good weather to the public in general). The industry therefore has reduced employment until such time as existing inventories can be reduced.

SUMMARY OF INFORMATION

PLASTIC FOOTWEAR:

Plastic footwear is dutiable under tariff item 611a (1) at rates of 20 p.c. - 27½ p.c. - 40 p.c.

Imports have been and are negligible. Domestic production — most of it by producers of rubber footwear and canvas (or utility) footwear — is great, and increasing steadily.

RUBBER FOOTWEAR:

Waterproof footwear of rubber or part-rubber is dutiable under tariff item 617 at Free - 22½ p.c. - 25 p.c.

Imports during the past decade have increased from almost negligible figures to more than 1,000,000 pairs in 1956, but at that represented then only about 9.12 p.c. of domestic disappearance of that kind of footwear. Chief supplying countries, in pairs, are the United Kingdom and Japan. Prices of the domestic and the imported products have been increased slightly since last year. Production has declined substantially during the first seven months of 1957, as compared with the same period in 1956, reputedly reflecting an unusually heavy inventory position.

CANVAS FOOTWEAR:

Canvas or utility footwear is dutiable under tariff item 611a (2) at rates of 20 p.c. -  $27\frac{1}{2}$  p.c. - 40 p.c.

Imports during the past decade have increased from negligible quantities to 2,414,000 pairs in 1956, representing 56.94 p.c. of domestic usage in that year. Hong Kong is the chief supplier, with India second; these countries together supplied 88 p.c. of imports during the first seven months of 1957. Japan and China are now also shipping to Canada. The United Kingdom is the fourth largest supplier, ranking after Hong Kong, India and Japan in volume of shipments.

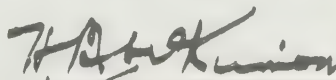
While in 1956 domestic output declined to 248,000 pairs less than that of 1955, during the first seven months of 1957 it rose to approximately 600,000 pairs more than that of the same period in 1956. Imports from January to July of 1957 were down considerably; they accounted for 45.9 p.c. of domestic disappearance in that period. Values per pair for imports do not differ greatly according to source. Almost all imports are valued well below the prices of Canadian canvas footwear.

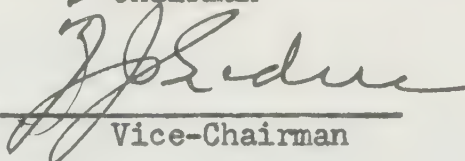
CONCLUSION:


Having reviewed and considered such additional information as has become available since the date of its earlier Report in respect of Waterproof Rubber Footwear and Rubber-soled Canvas Footwear (March, 1957); and


Having directed its attention particularly to the request by the applicant domestic producers that a customs duty of 15 p.c. ad valorem be imposed on Rubber Footwear imported under the British Preferential Tariff appertaining to tariff item 617;

The Tariff Board is not persuaded, on the information available and, more particularly, on the evidence regarding the small extent to which Rubber Footwear of United Kingdom origin caters to Canadian requirements, that it should recommend to the Minister of Finance that he take action in accordance with the request which has been the subject of this (further) Inquiry.

  
Chairman

  
Vice-Chairman

  
Vice-Chairman

  
Member



September 27, 1957.

H. B. McKinnon, Esquire, C.M.G.,  
Chairman,  
The Tariff Board,  
70-74 Elgin Street,  
Ottawa, Ontario.

Dear Mr. McKinnon:

The Minister of Finance, in a letter of September 17th, 1957, to Mr. H. J. Ross, advised of his request to the Tariff Board for a supplementary report under Reference 121.

He noted that he had told the Tariff Board that he did not consider it necessary or advisable for the Board to conduct further hearings. However, he pointed out that he had also informed the Board that this would not preclude the Board from taking account of current statistical or other relevant factual information.

For this reason we are setting forth in this letter certain information which we hope and trust will be considered relevant and will be of help to the Board in formulating its recommendations.

#### Industry requests

Subsequent to our representation to the Tariff Board in December, 1956, a more specific description of the measures which we have requested of the government has been made. This was done on the suggestion of the Minister of Finance.

They were outlined in a joint submission by the industry and the Canadian Labour Congress to the Minister of Finance on August 28th, 1957, as follows:

1)(a) that the values for duty purposes on rubber-soled canvas footwear and waterproof rubber footwear (Tariff Items 611a(2) and 617) not entitled to entry under the British Preferential Tariff or any lower tariff, be fixed under the authority of Section 38 of the Customs Act so that the landed costs of the goods in question are equal to 90 per cent of the average all-in costs (factory costs plus selling and administrative expense) of the three lowest-cost Canadian producers of comparable lines.

or alternatively

(b) that Tariff Items 611a(2) and 617 be amended in the forthcoming Budget by provisos that the values for duty purposes on goods under these items not entitled to entry under the British Preferential Tariff or any lower tariff, be fixed by the Minister of National Revenue on the basis of Canadian costs as may be determined by the Minister of National Revenue and that such fixed values be deemed the fair market values.



and

that, when the above amendments have been enacted, the Minister of National Revenue fix values which will make the landed costs of the goods in question equal to 90 per cent of the average all-in costs (factory costs plus selling and administrative expense) of the three lowest-cost Canadian producers of comparable lines.

2) that Tariff Item 617 be amended in the forthcoming Budget to reimpose a duty of 15 per cent ad valorem under the British Preferential Tariff on waterproof rubber footwear.

3) that the Government of Canada negotiate an agreement with the Government of India to voluntarily limit export of rubber-soled canvas footwear to Canada to 250,000 pairs per annum.

We feel that we should give you amplifying information with regard to our request under 1 (a).

In asking that measures be applied to bring the landed costs of the goods in question to 90 per cent of the average all-in costs of the three lowest-cost Canadian producers, we believe that the 90 per cent figure could, and should be adjusted up or down as experience indicates the necessity of such revisions. Import statistics will show whether 90 per cent is too low or too high.

#### Current import situation

In our recent brief to the Minister of Finance we referred to the fact that import statistics showed a decline in imports and might lead to the conclusion that "the menace to our industry has receded".

In stating that this would be a serious misapprehension we are, of course, basing this conclusion on those fundamental factors of labour-cost differentials, long-term trends, etc., with which the Board is fully familiar. There are, however, additional facts which we believe you would find significant.

In regard to waterproof rubber footwear there has, of course, been a decline in imports but it should be noted that during the period January to June, 1957, Canadian sales have also experienced a substantial decline due to the unusually mild weather conditions which prevailed in the late winter and early spring months across Canada.

In regard to canvas footwear we have learned that orders of low-wage imports have now been placed in such volume that when official statistics on the first quarter of 1958 are available they will show a resumption of the long-term upward trend of imports. Obviously we do not have, as a group, statistical information on this to give you but we have confidence that this general statement is reliable.

More specifically, current offerings of rubber-soled canvas shoes from overseas indicate that import prices will be even

lower in 1958. Hong Kong rubber-soled canvas shoes for example are quoted at prices approximately 7 per cent lower for the next buying season. This percentage decrease does not take into account the exchange factor which would make the difference even greater.

Rubber-soled canvas footwear from another low-wage country has now appeared in the Canadian market. 2,160 pairs of rubber-soled canvas shoes, valued at \$1,151.00 (Preliminary Dominion Bureau of Statistics Report, June 1957) have already arrived from Communist China. These shoes are being offered, C.I.F. Montreal at \$8.40 per dozen for youth's sizes; \$9.60 per dozen for boy's, and \$10.50 per dozen for men's. These prices do not include sales tax or duty, and duty-wise the Most-Favoured Nation category is applicable.

In our opinion these shoes are better in quality and finish than shoes made in Hong Kong.

For your information and comparison we are sending you under separate cover, samples of the Chinese shoes in three size ranges.

#### Tariff Board report

This is the logical point for us to respectfully request the Board's review and reconsideration of its concluding comments on Page 33 under (1) and its observations on the same subject on Page 29 under the heading "Utility".

The Board states that "imports are catering to the needs or the preferences of an expanding market which these imports, themselves, have helped to create and are exploiting: a market made up of thousands of Canadian consumers who -- while attracted by the current and growing vogue for rubber-soled canvas footwear -- had not felt that they could afford to indulge their fancy at the prices charged for the competing -- and admittedly superior -- domestic product." We submit that this conclusion is based on highly questionable grounds.

We believe that the grounds on which you based your conclusions are highly questionable because they entirely ignore two vital points which must be considered when studying trends in canvas footwear demand --

- 1) Fluctuation in canvas footwear demand from year to year due to variations in climate,
- 2) Population growth.

To give an extreme illustration of the questionable nature of the grounds on which you based your conclusions we would point out that if instead of choosing the years 1949 and 1955, the years 1950 and 1954 had been chosen the figures would indicate that a substantial increase in imports resulted in a substantial decline in the total Canadian demand. This also would obviously be an invalid conclusion.

The cause of this rather surprising variation in the conclusions that can be drawn from taking figures for just two years



is to be found in the very great fluctuation in demand for canvas footwear from year to year which will be readily apparent to you if you refer to the figures of Apparent Canadian Demand in Table 1 on page 16 of our submission to you last December. This fluctuation in demand results from favourable or unfavourable summer weather conditions.

We suggest as indicated above that in order to arrive at any sound conclusion on this point it is necessary to study the trend in demand over a period of years.

On the basis of demand during the five years 1948 to 1952 inclusive, during which imports were a negligible factor in the market, average annual demand for canvas footwear was 3,185,000 pairs.

Assuming an estimated demand of 3,850,000 pairs for 1957\* it will be found that the average annual demand for the five years 1953 to 1957 inclusive amounts to 3,837,000 pairs, representing an increase of 20.4 per cent over the average annual demand in the earlier period.

Relating this increase in demand to population: the average population of Canada in the five years 1948 to 1952 inclusive was 13,684,000 whereas the average population for the five years 1953 to 1957 inclusive was 15,627,000, an increase of some 14 per cent. But by far the largest part of the market for canvas footwear is in the five to sixteen years old age group. If we take this group we find that the average population in the five to sixteen year age group in the years 1949 to 1952 inclusive was some 2,927,000, whereas, in the years 1953 to 1956 inclusive the average population in this age group was 3,479,000, representing an increase of some 18 per cent which, as you will observe, corresponds very closely to the increase in demand for canvas footwear since 1949.

We know that you will want to review this first and vitally important conclusion of the Tariff Board report in the light of the above.

#### Current financial condition of the Industry

To assist you in formulating your recommendations, the individual companies in the industry are sending to you earning statements for (1) 12 months of 1956, (2) first six months of 1956, (3) first six months of 1957. Individually, too, we are sending you the most recent employment figures for the industry. If you require any additional information of any kind, the companies will be more than pleased to furnish it to you.

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\* This estimate was made by adding to the actual reported demand for the first six months of 1957 an estimate for the last six months. This latter was obtained by establishing the average percentage of the annual total demand applicable to the last six months for the years 1954 to 1956 inclusive and taking this percentage as applicable to the year 1957.



In this letter we have resisted the natural temptation to make every point of argument possible. Rather we have endeavoured to supply you with additional information which we believe is sound, reliable and important to you in formulating your recommendations.

You know, of course, that we are willing and indeed anxious to co-operate in any way that you might want in supplying further information.

Yours sincerely,

(sgd.) Paul E. Brunet

-----  
Vice-President,  
the Acton Rubber Limited,

(sgd.) A. Stuart McLean

-----  
President, E.G.W.  
The British Rubber Company Limited,

(sgd.) H. Wolfhard

-----  
Vice-President,  
Dominion Rubber Company Limited,

(sgd.) W.H. Kaufman

-----  
Vice-President,  
Kaufman Rubber Company Limited,

(sgd.) J.W.H. Miner

-----  
Vice-President,  
The Miner Rubber Company Limited,

(sgd.) H.J. Ross

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President,  
United Rubber Limited.

APPENDIX B

To the Honourable Donald Fleming, M.P.,  
Minister of Finance, Canada.

Dear Sir:

The undersigned Importers of Rubber-Soled Canvas Footwear have noted the two papers referred to above and would like to bring to the attention of the Minister the following facts relating to the Import of Rubber-Soled Canvas Footwear from Asiatic Countries:

- 1) Table I of the Brief submitted by the Canadian Rubber Footwear Industry shows the following average factory mill-door costs per pair of Rubber-Soled Canvas Footwear produced by the manufacturers during the period 1935 to 1955 inclusive:

	<u>CANADIAN PRODUCTION</u>		<u>AVERAGE PRODUCTION</u>
	<u>Prs</u>	<u>\$</u>	<u>COSTS PER PAIR</u>
1935	4,166,436	3,099,428	\$0.74
1939	5,135,103	3,393,512	0.66
1945	4,453,072	3,816,161	0.86
1950	3,664,013	6,199,611	1.70
1951	3,642,506	7,847,506	2.15
1952	2,303,606	5,124,209	2.22
1953	2,855,439	5,424,689	1.90
1954	1,923,691	3,847,525	2.00
1955	2,078,752	3,942,208	1.90

- 2) We note from the above figures that the average production cost increased during the period 1945 to 1952 by 158%.
- 3) The Dominion Rubber Company Ltd. are producers of tires and Industrial Rubber Products. They own United Rubber Ltd. who manufacture Gutta Percha and Columbus Brands Rubber Footwear. This Company, during the period 1945 to 1952, received from Labour Unions demands made upon it for increases in hourly wages paid to Tire Workers and Workers of Industrial Rubber Products.

In most cases, these demands were met by the manufacturer. The wage increases obtained by Tire and Industrial Rubber Workers were passed on to the Footwear Workers. If the wage increase was fifteen cents per hour for a Tire Worker, it represented a small fraction of the cost of a truck tire. But if the same hourly wage increase was passed on to a Footwear Worker making Rubber-Soled Canvas Footwear, this wage increase represented a large percentage of the unit cost of a pair of Rubber-Soled Canvas Footwear.

- 4) This same Table I shows other interesting facts. Between 1946 and 1947, we note that production of Rubber-Soled Canvas Footwear increased by 1,603,317 prs. Exports attained their highest figure, i.e. 2,299,029 prs in 1947. By 1949, when imports totalled only 1,996 prs, production had decreased by 3,266,258 prs from the high of 6,393,480 prs obtained in 1947.

By 1952, when imports totalled only 214,433 prs, production had dropped to 2,303,606 prs or a decrease of 64% from the high of 1947. In 1952, production cost per pair attained its highest figure of \$2.22.

5) The above figures of Table I show that:

- i) The demands placed upon the Industry by Labour Unions contributed to increased production costs.
- ii) The Industry priced itself out of the Export market. In 1947, Exports accounted for 36% of production.

We are not in agreement with Paragraph 3 of Part III (Page 34) of the Report of the Tariff Board. Reference No. 121.

It would be better to state: "The Canadian manufacturers of Rubber-Soled Canvas Footwear, because of the demands placed upon the Dominion Rubber Company by the Labour Unions, had to absorb in their costs of manufacturing repeated increases in hourly wages. After the demands for increased hourly wages had been accepted by the Dominion Rubber Company, the other manufacturers had to grant their workers the same increased wages."

The term which we would apply would be: "The Industry priced itself out of the Export Market".

- iii) Before Imports were made in substantial quantities, production of Rubber-Soled Canvas Footwear had decreased greatly.
- iv) To an average production cost per pair of \$1.90 must be added a distribution mark-up and retailer's mark-up. These mark-ups bring a retail consumer price of \$3.99 (estimated). At that price level, Rubber-Soled Canvas Footwear is in competition with Leather Footwear. If the Consumer has a choice between Leather Footwear and Rubber-Soled Canvas Footwear, both retailing at the same price, his preference will naturally be for Leather Footwear.

6) Imports of Rubber-Soled Canvas Footwear can be classified as follows:

Boy's	in sizes 3 to 8	28%
Little Gent's	in sizes 11 to 2	34%
Child's	in sizes 4 to 10	38%

In 1955, there were 2,509,874 prs imported for a total of \$1,332,873.00. These figures give an average cost on imports of 0.53 per pair.

The importer pays 27½% duty and 10% Federal Sales Tax. The laid-down cost averages 0.80 per pair. In order to arrive at this figure, the greater portion of the imports of Rubber-Soled



Canvas Footwear must be of Children's and Little Gent's sizes, i.e. 4 to 10 and 11 to 2. We see from the above Table that 72% of the imports are made in these sizes.

Imports of sizes 4 to 10 are concentrated on Derby Style Oxfords in Blue, Red or White with pattern. Little Gent's (11 to 2) would be divided 66-2/3% Basketball Boots and 33-1/3% Misses' Oxford Shoes.

These shoes are sold mainly in retail sales outlets catering to the medium or low income group of the population. These outlets are:

The Variety Type Chain Stores  
Bargain Basements of Coast-to-Coast Departmental Stores  
Retail Shoe Stores located in working class areas.

Children's shoes of the type described above will retail at 0.99 and \$1.09.

We are in complete agreement with the following statement (Part III (1) Page 33) of the Tariff Board:

"Such Imports are catering to the needs or the preference of an expanding market which these imports, themselves, have helped to create and are exploiting: a market made up of thousands of Canadian consumers who had not felt that they could afford to indulge their fancy at the prices charged for the competing -- and admittedly superior -- domestic product".

In the above paragraph, we have left out the words: "while attracted by the current and growing vogue for Rubber-Soled Canvas Footwear" intentionally.

We cannot say that there is a current and growing vogue for Rubber-Soled Canvas Footwear. There has always been a demand but at a price commensurate with the income of the low wage group. It is a very seasonal commodity -- greatly abused by youngsters. A housewife will buy an average of two pairs per season for an active youngster. A housewife will buy two pairs at \$1.99 per pair but will not buy one pair at \$3.99.

Retail merchandising is adjusted at the retail price which you can get for a commodity. For the same reasons that you cannot ask a retail price of 0.50 for one razor blade, you cannot expect Rubber-Soled Canvas Footwear to retail at \$3.95 and upwards.

Table I of the Brief presented by the Canadian Rubber Footwear Industry has one column titled "Apparent Canadian Demand Prs." This column can be interpreted only one way.

In 1937, apparent Canadian Demand is shown at 2,446,073 prs. In 1952 (15 years later), this demand is shown at 2,491,605. We see no change in apparent demand. The population has increased considerably in the space of 15 years. Gross National Product has reached new levels. In 1952, the crop of war babies is of age to wear Canvas Footwear. In 1952, we notice a drop in apparent Canadian demand of 1,604,838 prs since 1947 as if

there had been a disappearance of population of corresponding amount.

- 7) At the present time, there are two main groups of importers of Rubber-Soled Canvas Footwear from Asiatic Countries:

Group I comprises members of the Canadian Rubber Footwear Industry. The Acton Rubber Ltd. is a subsidiary of Alfred Lambert Inc. This latter Company is one of the largest importers of Rubber-Soled Canvas Footwear. The British Rubber Company Ltd. through an affiliated company is another large importer of this type of footwear.

Group II comprises Shoe Wholesalers who, in the course of their normal business, import shoes for resale to large volume buyers or shoe retailers. These importers have no financial affiliations with the Rubber manufacturers who have submitted a Brief; Tariff Board 121. We include ourselves in this latter group.

- 8) The above facts are reported to the Minister of Finance and the Tariff Board in order to bring further light to the situation as it exists at the present time. The demands placed upon the manufacturers of Rubber products by the Labour Unions before Rubber-Soled Canvas Footwear was imported from Asiatic Countries in substantial quantities, have contributed to raising the manufacturing costs of Rubber-Soled Canvas Footwear to such high levels that:

- i) The manufacturers as far back as 1949 had lost their Export markets.
  - ii) The average manufacturing costs of Rubber-Soled Canvas Footwear were at their highest levels in 1952 when imports amounted to \$155,840.00 or 214,433 prs. These high costs of production called for retail prices which were no longer attractive to the consumer. They represented values which were inferior to those obtainable in shoes made of leather.
- 9) We therefore submit that the situation as it exists now is one over which the Canadian Government has no control. Placing an embargo in the form of higher tariffs or establishing quotas would be a measure contributing to inflationary practices. It would be reflected by new demands placed on the manufacturers by the Unions which would call for still higher prices at the consumer level. These higher prices would bring a further drop in production and the complete elimination of this phase of the manufacturing Industry.

Whilst on the subject of inflationary practices, we would like to call to notice the recent request made by A.F.L. - C.I.O. Boot and Shoe Workers Union to the Shoe Industry in the United States that this Industry should and must raise its prices. (The Wall Street Journal 17th September 1957)

The elimination of competition of one form or another brings higher prices.

The submission by the Canadian Labour Congress of August 28th, if approved by the Minister, would eliminate foreign competition.



The Canadian Labour Congress who is affiliated through its Unions to A.F.L.-C.I.O., would make the same demands to the Canadian manufacturers that are presently made to the Boot and Shoe manufacturers in the United States. We are of the opinion that, at the present level of costs, the Canadian manufacturers would not manufacture one pair more if imports were stopped. They would manufacture fewer pairs if prices were increased and might eventually face complete elimination.

- 10) It must be further realized by the Minister that we, as Importers, run great financial risks when we import from Asiatic Countries. We help promote Trade. The ability of the Canadian Government to sell its products to the Asiatic Countries depends a great deal on the vigour and stamina of its Canadian Importers who purchase the products of these countries.

We feel that we should not be looked upon as a disturbing influence in the Economy and should receive from the Canadian Government the same consideration which is now given to the Canadian Footwear Industry and the Canadian Labour Congress.

Because of our limited financial resources, we have not been able to retain counsel to present a Brief. We have not covered in this short presentation the subject of Imports of Waterproof Footwear. If the Minister should so desire, we are prepared to state our views on this latter subject.

Yours faithfully,

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Rene Talbot Shoe Ltd. - Quebec, Que.

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General Footwear Company Ltd. - Montreal, Que.

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Dave McDonald Shoes Ltd. - Belleville, Ont.



CANADIAN IMPORTERS & TRADERS ASSOCIATION INC.

October 3, 1957.

To The Chairman and Members,  
The Tariff Board,  
70-74 Elgin Street,  
Ottawa, Canada.

Gentlemen:

Arising from the Minister's request to the Tariff Board for recommendations as to tariff or value for duty treatment of Waterproof Footwear and Rubber-soled Canvas Footwear, we wish to present our views for the Board's consideration.

We are strongly opposed to the principle of fixing arbitrary values for duty purposes. We feel that if it is desired to grant protection it should be done by the open and direct method of establishing an appropriate rate of duty.

The proposal by the Canadian rubber footwear manufacturers and Canadian Labour Congress to fix arbitrary values based on Canadian production costs is not only wrong in principle but impractical.

The difficulty of comparing an imported article of this kind with its Canadian equivalent and then arriving at the cost of the domestically produced article is such that long delays will certainly arise before the importer is informed of the fixed value to be placed on the imported article. Obviously he must know the value for duty purposes before he can calculate his landed costs. This he must know before he can place orders. The delay which is bound to arise will for all practical purposes shut him out of the market. This is a common experience in other countries where such procedure obtains. We believe that this is well known in the industry.

Furthermore it is apparent that in most lines the Canadian article is superior in quality thus making realistic comparison with imported lines even more difficult. The Canadian manufacturer tends towards high style in lasts, patterns, and colours while the imported footwear is generally a simple basic item used for protection of the foot at a low cost.

It is extremely difficult for anyone outside a manufacturing firm to ascertain the true factory cost to say nothing of selling and administrative expenses. To take the figure produced by the manufacturer would open the way to suspicion.

Rubber-soled canvas shoes provide a cheap footwear much favoured by the low income group, particularly those with large families. To deny them the opportunity to purchase low cost imported footwear in these times of high cost living is wrong.

Insofar as waterproof footwear is concerned imports under tariff item 617 fill only a small part of the Canadian demand, 9.65% by volume and 5.8% by dollar value for the year 1955, and the United Kingdom is the chief supplier.

In view of the desirability of increasing imports from the United Kingdom it would appear reasonable and in line with stated Government policy to not interfere with this outlet for British goods in Canada by placing a 15% British Preferential duty on rubber footwear.

Japan is one of our best customers now and in the future is likely to absorb a rapidly increasing volume of Canadian products, particularly wheat. This she can only do if we purchase from her. The protection provided by the present rate of duty of 22½% is high as Canadian rates of duty go.

Undoubtedly plastic footwear (largely produced in Canada by the Canadian rubber footwear manufacturers who are complaining) has reduced the market for rubber footwear. This is because the plastic article is used in the Spring and Fall while rubber is used in the cold weather when plastic is not serviceable. Thus the plastic article saves wear on the rubber overshoe so that they last longer and do not need to be replaced so often.

Labour costs are high (as against cost of material) in the production of waterproof footwear and rubber-soled canvas footwear in Canada and therefore cost of production is high. This makes it difficult for the Canadian manufacturer to retain the volume of business formerly enjoyed, particularly in the low priced popular lines which the Canadian public requires. It may now be necessary for a major adjustment to be made in this part of the overall rubber industry in Canada.

We wish to draw to your attention the fact that in placing orders abroad for rubber and canvas footwear it is almost invariably necessary to furnish a letter of credit or other firm commitment-to-pay to accompany the order. This means that the importer pays for goods as much as six months before he sells them. If his landed cost is increased by reason of having to pay more duty he, the importer, must stand the loss.

If any increase in the amount payable as duty is contemplated sufficient notice should in all fairness be given in order that the importer who has placed an order in good faith and in the manner customary in the trade will not be penalized.

We recommend that no increase in duty be recommended and certainly no arbitrary value for duty purposes be established.

Yours sincerely,

CANADIAN IMPORTERS AND TRADERS ASSOCIATION INC.

(sgd.) H. C. MacKendrick  
General Manager.

M:S

PRODUCTION OF WATERPROOF FOOTWEAR  
('000 pairs)

Entirely of Rubber

	<u>Boots — knee and hip</u>	<u>Boots — lumbermen's</u>	<u>Overshoes</u>	<u>Rubbers</u>	<u>Total</u>
1937	3,713	1,707	3,185	5,085	13,690
1947	4,346	1,405	2,669	5,505	13,925
1949	2,013	793	2,850	3,692	9,348
1950	1,812	537	3,250	3,784	9,383
1951	2,135	762	3,656	3,808	10,361
1952	1,617	601	3,920	3,746	9,884
1953	1,318	570	4,030	3,407	9,325
1954	1,440	678	2,988	3,600	8,706
1955	1,629	528	3,518	3,850	9,525
1956	1,539	532	4,053	3,100	9,224
1957*	700	202	1,768	1,583	4,253

Part Rubber

	<u>Rubber bottoms and leather tops</u>	<u>Rubber bottoms for leather tops</u>	<u>Overshoes and galoshes cloth uppers</u>	<u>Total</u>
1947	411	248	3,299	3,958
1949	202	266	1,755	2,223
1950	209	291	1,625	2,125
1951	223	248	1,228	1,699
1952	180	229	1,284	1,693
1953	132	226	1,292	1,650
1954	86	190	903	1,179
1955	138	205	1,059	1,402
1956	157	259	947	1,363
1957*	79	122	252	453

Plastic

<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957**</u>
60	104	526	1,707	3,333	1,328

\*7 months only (preliminary)

\*\*5 months only



Imports of Rubber Footwear  
(Jan. to July, inclusive)  
'000 of pairs and dollars

Source	1955		1956		1957**	
	pairs	\$	pairs	\$	pairs	\$
Canvas						
United Kingdom	115	56	148	92	48	35
India	307	143	458	235	267	119
Hong Kong	1,425	751	1,485	774	930	456
Japan	*	*	93	51	78	30
China	-	-	-	-	2	1
United States	11	12	9	11	22	21
Other	<u>7</u>	<u>5</u>	<u>6</u>	<u>8</u>	<u>11</u>	<u>11</u>
Total	1,865	967	2,199	1,171	1,358	673

Rubber, N.O.P.

United Kingdom	291	378	271	431	157	250
Czechoslovakia	95	95	102	102	41	41
Japan	-	-	29	19	91	67
Poland	-	-	13	11	-	-
China	-	-	-	-	-	-
Hong Kong	73	59	51	43	2	2
United States	29	44	17	34	8	21
Other	<u>9</u>	<u>18</u>	<u>6</u>	<u>10</u>	<u>6</u>	<u>16</u>
Total	497	594	489	650	305	397

\*less than 500

\*\*preliminary

Imports of Canvas Shoes with Rubber Soles  
(Tariff Item 611a(2) — s.c. 1702)  
(1000 pairs)

	<u>1937</u>	<u>1947</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957*</u>
United Kingdom	6	-	1	63	61	258	155	119	153	37
Hong Kong	-	-	-	5	72	345	717	1,980	1,648	792
India	114	-	-	159	36	65	159	351	466	209
Japan	-	-	-	-	-	-	1	25	103	66
United States	1	12	1	9	10	11	12	15	24	13
Netherlands	-	-	-	-	-	14	15	14	15	4
Other	5	-	-	78	37	12	3	6	4	8
Total	126	12	2	314	216	705	1,062	2,510	2,413	1,129

Imports of Rubber Boots and Shoes  
(Tariff Item 617 — s.c. 1703)  
(1000 pairs)

	<u>1937</u>	<u>1947</u>	<u>1949</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957*</u>
United Kingdom	34	-	4	174	281	332	438	665	507	124
Hong Kong	-	-	15	-	28	86	50	215	55	2
Czechoslovakia	-	120	42	159	32	70	41	155	252	33
Japan	-	-	-	-	-	-	-	29	142	57
United States	90	284	30	27	84	84	62	59	29	8
Switzerland	-	-	-	3	2	11	19	17	14	-
Netherlands	-	-	-	6	-	7	11	5	7	3
Other	-	-	-	1	7	2	4	7	41	1
Total	124	404	91	370	434	592	625	1,152	1,047	228

\*5 months only.

DOMESTIC DISAPPEARANCE OF FOOTWEAR  
('000 pairs)

Utility (canvas or other fabric tops)

	<u>Production</u>	<u>Exports</u>	<u>Production for Home Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as p.c. of D.D.</u>
1937	4,255	1,935	2,320	126	2,446	5.15
1947	6,393	2,299	4,094	12	4,106	0.29
1949	3,127	117	3,010	2	3,012	0.06
1952	2,304	28	2,276	216	2,492	8.66
1953	2,855	19	2,836	705	3,541	19.91
1954	1,924	14	1,910	1,062	2,972	35.73
1955	2,079	6	2,073	2,510	4,583	54.76
1956	1,831	6	1,825	2,414	4,239	56.94
1957*	1,603	3	1,600	1,358	2,958	45.90

Rubber and Part Rubber

	<u>Production</u>	<u>Exports</u>	<u>Production for Home Consumption</u>	<u>Imports</u>	<u>Domestic Disappearance</u>	<u>Imports as p.c. of D.D.</u>
1947	17,883	3,833	14,050	404	14,454	2.79
1949	11,571	629	10,942	91	11,033	0.82
1952	11,577	183	11,394	434	11,828	3.66
1953	10,975	109	10,866	592	11,458	5.16
1954	9,885	60	9,825	625	10,450	5.98
1955	10,927	142	10,785	1,152	11,937	9.65
1956	10,587	158	10,429	1,047	11,476	9.12
1957*	4,706	34	4,672	305	4,977	6.13

\*7 months only (preliminary)







EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
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CANADA

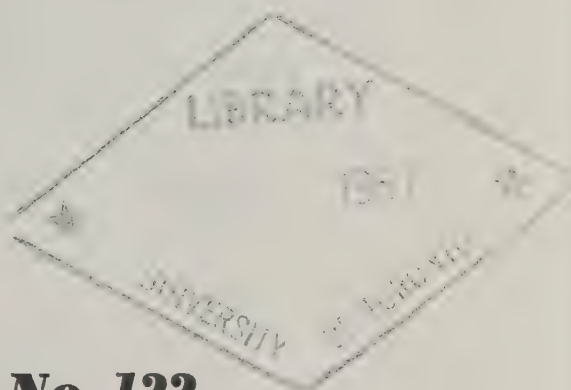
Report by

## THE TARIFF BOARD

*Relative to the Investigation Ordered  
by the Minister of Finance  
regarding the tariff treatment of*

## ZINC and ZINC PRODUCTS

**Reference No. 122**







*Report by*

**THE TARIFF BOARD**

*Relative to the Investigation Ordered  
by the Minister of Finance  
regarding the tariff treatment of*

**ZINC and ZINC PRODUCTS**

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***Reference No. 122***





Ottawa, September 30, 1957

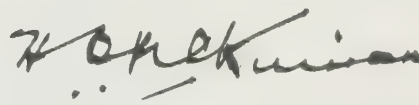
The Honourable,  
The Minister of Finance,  
Ottawa

Dear Mr. Minister:        Reference No. 122

In accordance with a direction to the Tariff Board to conduct an inquiry regarding zinc and various manufactures of zinc,

I have the honour to transmit herewith, for tabling in Parliament under the provisions of Section 6 of the Tariff Board Act, the Report of this Board in connection with the aforesaid Reference, in English and in French. A copy of the transcript of the information secured at the public hearings accompanies this Report.

Yours faithfully,

  
Chairman





## THE TARIFF BOARD

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Reference No. 122

### An Inquiry Respecting Zinc and Various Manufactures of Zinc

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The letter from the Minister of Finance, dated February 13, 1957, directing the Tariff Board to conduct the inquiry which is the subject of this Report is as follows:

I have received representations respecting the provisions of the Customs Tariff relating to zinc and various manufactures of zinc. It has been pointed out that while most basic forms of zinc are subject to duty, certain more highly fabricated forms are free of duty. Furthermore, there is no specific provision in the Tariff for zinc scrap; most zinc scrap had been classified under Tariff Item 711 until January 1956, at which time Tariff Item 345b was established by Order in Council providing, on a temporary basis, duty free entry for zinc scrap.

I, therefore, direct the Tariff Board to make a study and report, under Section 4(2) of the Tariff Board Act, on the following Items in Schedule A of the Customs Tariff:

345	346
345a	346a
345b	346c

and Item 358, with respect to anodes of zinc.

If the Board's studies should indicate that amendments to the Customs Tariff are desirable, I would request the Board to prepare a revised schedule of tariff items, with recommendations as to rates of duty, and to include the proposed schedule in its report. In preparing the proposed schedule, I would expect that the Board would keep in mind the obligations and procedures of the General Agreement on Tariffs and Trade.

## Public Hearing:

A public hearing before the Board respecting this Reference was held at Ottawa on May 21 and May 22, 1957. The following is a list of the companies which were represented at such hearing or which submitted written representations for discussion at the hearing:

### Appearances:

Atlas Powder Company, Canada, Ltd., Brantford, Ont.  
Booth, W.E., Company Limited, Toronto, Ont.  
Burgess Battery Company, Niagara Falls, Ont.  
Canadian Metal Mining Association, Toronto, Ont.  
Canadian Terrazzo and Mosaic Contractors' Association, The,  
Toronto, Ont.  
Cipel (Canada) Limited, Valleyfield, P.Q.  
Consolidated Mining and Smelting Company of Canada Limited, The,  
Montreal, P.Q.  
Greening, B., Wire Co. Ltd., The, Hamilton, Ont.  
General Dry Batteries of Canada, Limited, Toronto, Ont.  
General Motors of Canada, Limited, Oshawa, Ont.  
General Smelting Company of Canada Ltd., Hamilton, Ont.  
Hudson Bay Mining and Smelting Co., Limited, New York  
Illinois Zinc Company, Chicago, Ill.  
Latimer Limited, Toronto, Ont.  
Leslie, A.C., & Co. Limited, Montreal, P.Q.  
Matthiessen & Hegeler Zinc Co., LaSalle, Ill.  
McKinnon Industries, Limited, The, St. Catharines, Ont.  
Mining Corporation of Canada, Toronto, Ont.  
National Carbon Company, Division of Union Carbide Canada  
Limited, Toronto, Ont.  
Ray-O-Vac (Canada) Limited, Winnipeg, Man.  
Steel Company of Canada, Limited, The, Hamilton, Ont.  
White, D.A., & Co. Limited, Montreal, P.Q.

### Representations submitted by mail:

American Nickeloid Company, Peru, Ill.  
Ault & Wiborg Co., of Canada Limited, The, Toronto, Ont.  
British Non-Ferrous Metals Federation, The, Birmingham, England  
Canada Wire & Cable Company, Limited, Toronto, Ont.  
Canadian Lithographers' Association Incorporated, Toronto, Ont.  
General Printing Ink Corporation of Canada Limited, Toronto, Ont.  
Great-West Metal Products Ltd., Winnipeg, Man.

Certain Government Departments were also represented at the hearing. The representative of the Department of National Revenue was called upon on a number of occasions to clarify matters of classification and administration.

A transcript of the proceedings at the public hearing is attached to this copy of the Report, for the Table of Parliament.

Apart from the evidence or information put on the record at the public hearing, the Board secured considerable material from a number of sources for use in preparing this Report. A considerable portion of this information is of a confidential nature which, in accordance with the provisions of the Tariff Board Act, will be so treated.

The above lists of those firms which either appeared before the Board or communicated with it include representation for practically all the zinc producers in Canada. They also include a sizeable representation of zinc users. The two major categories of users are those firms engaged in galvanizing and those producing zinc die-castings. The Bureau of Statistics reports that 54 firms are engaged in galvanizing operations, by far the two largest being the Steel Company of Canada and Dominion Foundries and Steel Co.; these two firms galvanize flat-rolled steel. On the other hand, many of the other galvanizers are basically producers of steel consumer-durables and galvanizing is a part of their fabrication processes. The Board understands that there are between 35 and 40 die-casters in Canada, of whom half a dozen operate sizeable establishments. In addition to the above two groups there are other important users of zinc, e.g., the dry-cell battery manufacturers and those engaged in alloying. The total of all firms interested in either the production or the usage of zinc thus exceeds 100, ranging from such industrial giants as the Consolidated Mining and Smelting Company to users employing half a dozen workers.

#### Visits to Industry:

During the course of the inquiry, the plant of the Burgess Battery Company was visited by members of the Board and the Board's economist. Other interested parties were also visited and consulted in their plants and offices.





## PART I

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Zinc is a metallic chemical element (Zn); its traditional use has been as a component of brass, an alloy known since ancient times. It appears, however, that until comparatively recent times zinc was not separated from the other metals with which it is normally found. The Encyclopaedia Britannica states that the art of zinc-smelting was first introduced in England around 1730 and somewhat later on the continent of Europe.

Zinc normally occurs in nature in combination with other metals, such as silver, lead, copper, cadmium or iron. It is found in many regions, with major workings in Europe and North America. Zinc is bluish white, takes a high lustre when polished, and is sufficiently ductile to be rolled at relatively low temperatures, 100 to 150° C.

Zinc has a number of natural properties which make it a useful industrial metal; perhaps the most commonly prized of these properties is its resistance to corrosion. Among many applications, it is used in making household appliances, hardware, lighting fixtures, paints, roofing, preserving-jar caps, rubber, batteries, and engraver's plates; in lithographing, in die-casting (automobile radiator grills, door handles, etc.), and in the galvanizing of other metals, notably steel.

Zinc is sold and used in a number of forms: refined pigs or slabs are melted for use in galvanizing, in die-casting and in other moulded applications; recast slabs are also rolled into plate, sheet, strip, ribbon and bars and rods, for fabrication into many end-use products; and zinc derivatives (e.g.: oxides, sulphides and lithopone) have a place in the manufacture of paints, rubber, and other floor coverings.

### EXISTING TARIFF STATUS OF ZINC

This study is concerned with zinc in the following forms:

- (1) Primary, excluding ores and concentrates but including spelter and refined zinc.
- (2) Semi-fabricated zinc, including rolled forms (coated or not), alloys, semi-prepared sheet for photo-engraving and lithographing, etc.
- (3) Manufactures of zinc classified at present under tariff item 346. This item is a residual one, in that it provides

for the entry only of those manufactures which are not specifically mentioned elsewhere in the Tariff. Such manufactures as are specifically provided for in other items (e.g., die-castings for use by the automobile industry) are not included in this study, which in so far as item 346 is concerned, is restricted to a few of the more-advanced forms of zinc.

The tariff items under which imports of zinc in various forms enter Canada are relatively few in number — a total of six being devoted solely to zinc. In addition, certain types of zinc enter under one or two more general items. The tariff items involved are as follows:

345: Zinc dust, strip and sheets; zinc plates for marine boilers; sal ammoniac skimmings and seamless drawn tubing of zinc.

	Free	Free	Free
GATT		Free	

Rolled zinc in the form of ribbon, strip or sheet, as well as plate for marine boilers, enters under this item if not alloyed. (It is permissible to have small quantities of natural impurities present.) Unalloyed zinc for lithographing is classified under this item when not further processed than rolled.

For statistical purposes the Bureau of Statistics subdivides this item as follows:

(s.c. 6115)

Zinc dust

<u>Imports:</u>	<u>1956</u>	<u>tons</u>	<u>\$</u>
United Kingdom		334	103,603
United States		<u>157</u>	<u>50,428</u>
Total		491	154,031
	<u>1955</u>		
United Kingdom		219	64,396
Belgium		14	2,710
United States		<u>186</u>	<u>60,251</u>
Total		419	127,357

Exports: Nil



(s.c. 6113) Strip and sheet  
 (including that imported under tariff item 346c  
 and including coated forms)

<u>Imports:</u>	<u>1956</u>	<u>tons</u>	<u>\$</u>
United Kingdom	68		25,890
Belgium	132		48,703
Germany	376		136,154
United States	<u>1,039</u>		<u>554,645</u>
Total	1,615		765,392

	<u>1955</u>		
United Kingdom	21		7,018
Belgium	278		86,857
Germany	471		160,997
United States	<u>1,071</u>		<u>534,122</u>
Total	1,841		788,994

Exports: Nil

(s.c. 8263) Sal ammoniac skimmings

<u>Imports:</u>	<u>1956</u>	<u>tons</u>	<u>\$</u>
United Kingdom	3		561
Belgium	44		6,321
Germany	179		26,571
United States	<u>177</u>		<u>37,258</u>
Total	403		70,711

	<u>1955</u>		
United Kingdom	10		1,275
Belgium	15		2,194
Germany	91		12,914
United States	<u>221</u>		<u>46,696</u>
Total	337		63,079

Exports: Nil

Note: Imports of plate under tariff item 345 are shown by the Bureau of Statistics under item 345a; similarly, imports of tubing are under item 346 — manufactures of zinc.

345a: Zinc spelter and zinc in blocks, pigs, bars, rods, or granular form; zinc plates, n.o.p.

per pound            3/4 ct.            1 ct.            1 ct.

The rolled forms which enter under this item are bars, rods and plate, n.o.p. In addition, it is the practice to classify there- under rolled or extruded shapes or sections; the latter product is of interest to manufacturers of dividers for terrazzo floors.

(s.c. 6111)

Zinc spelter

Imports: Nil

<u>Exports:</u>	<u>1956</u>	<u>tons</u>	<u>\$'000</u>
United Kingdom	63,838		15,038
India	1,120		245
Argentina	1,673		373
United States	115,895		31,077
Other	<u>1,202</u>		<u>280</u>
Total	183,728		47,013

1955

United Kingdom	95,598	19,420
India	3,260	575
United States	113,306	26,803
Other	<u>1,673</u>	<u>309</u>
Total	213,837	47,107

(s.c. 6112)

Zinc blocks, pigs, bars, plates

<u>Imports:</u>	<u>1956</u>	<u>tons</u>	<u>\$</u>
United Kingdom	12.5		4,931
Germany	3.0		1,164
United States	<u>60.5</u>		<u>36,839</u>
Total	76.0		42,934

1955

United Kingdom	2.5	975
Belgium	2.2	595
Germany	.5	227
United States	<u>44.6</u>	<u>26,131</u>
Total	49.8	27,928

Exports: Nil

345b: Zinc dross and scrap for use in the recovery of the zinc content.

	Free	Free	25 p.c.
<u>Imports:</u>	n.s.s.		
<u>Exports:</u>	<u>1956</u>	<u>tons</u>	<u>\$</u>
	Belgium	3,000	246,554
	Netherlands	1,220	92,082
	United States	685	101,991
	Other	<u>561</u>	<u>72,227</u>
	Total	5,466	512,854
	<u>1955</u>		
	Belgium	2,292	151,655
	Netherlands	1,260	89,352
	United States	1,208	145,696
	Other	<u>705</u>	<u>75,511</u>
	Total	5,465	462,214

346: Zinc, manufactures of, n.o.p.

	15 p.c.	22 $\frac{1}{2}$ p.c.	25 p.c.
GATT		17 $\frac{1}{2}$ p.c.	

It is understood that flat-rolled zinc is classified under this item if plated on one side, if punched or otherwise fabricated, or if further processed than rolled. As a result, rolled zinc which has been ground to remove imperfections is classified thereunder.

(s.c. 6116)

Zinc manufactures  
(this statistical classification covers  
the tubing specified in tariff item 345)

<u>Imports:</u>	<u>1956</u>	<u>\$</u>
	United Kingdom	33,484
	Germany	19,427
	Belgium	11,765
	United States	2,390,619
	Other	<u>8,763</u>
	Total	2,464,058



<u>1955</u>	<u>\$</u>
United Kingdom	17,289
Germany	16,732
United States	2,069,723
Other	<u>4,748</u>
Total	2,108,492

Exports: 1956 - total of \$221,441, mostly to the Netherlands.

1955 - total of \$162,188, mostly to the U.S.A.



346a: Zinc slugs or discs, when imported by manufacturers of electric dry batteries for use in the manufacture of seamless cups or shells for such batteries, in their own factories.

GATT	Free	Free	25 p.c.
		Free	

(s.c. 6117)      Zinc slugs for dry batteries

<u>Imports:</u>	<u>1956</u>	<u>\$</u>
	France	166
	United States	<u>317,429</u>
	Total	317,595

1955 - total of \$346,078, all from the U.S.A.

Exports: Nil



346c: Zinc sheets, not planished, ground or polished, coated on one side with acid-resisting material, imported by planishers, grinders or polishers of zinc sheets to be used exclusively in the planishing, grinding, polishing or other processing of such sheets, ready for use by photo engravers.

GATT	Free	Free	25 p.c.
		Free	

This item was created because this type of specialty zinc could not be obtained from Canadian production. Imports are shown under item 345.



711: All goods not enumerated in this schedule as subject to any other rate of duty, and not otherwise declared free of duty, and not being goods the importation whereof is by law prohibited.

	15 p.c.	25 p.c.	25 p.c.
GATT		20 p.c.	

    Rolled zinc, if alloyed in any degree by other than natural impurities, is classified under this item; it is not possible to segregate imports of alloyed zinc from other products classified thereunder.



PROPOSALS BY INTERESTED PARTIES

Proposals to change the rates of duty and the wording of existing zinc items were received from the Burgess Battery Company (the sole Canadian roller), from the General Smelting Company, which produces zinc dust, from a number of zinc users, and from three non-Canadian suppliers. Other interested parties, notably the primary producers of zinc, counselled against any changes in rates.

The Burgess Battery Company requested that the rates on the types of rolled zinc which it produces should be revised so as to give protection to its products. It therefore proposed to the Board that the following rates be recommended:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
Zinc strip and sheet	20 p.c.	20 p.c.	20 p.c.
Zinc plates        per lb.	2 cts.	2 cts.	2 cts.
Zinc slugs or discs	17½ p.c.	17½ p.c.	17½ p.c.

"The Burgess Battery Company have no objection to the continuance of the existing rates on all of the other zinc products covered by Tariff Board Reference No. 122, except that they believe that the restoration of the most-favoured-nation rate of 22½ p.c. on manufactures of zinc, n.o.p., that prevailed prior to January 1, 1939, would be in the best interests of the Canadian economy."

In support of these proposals, representatives of the Burgess Battery Company made the following statements at the public hearing:

- 1. Burgess had been encouraged to expand its zinc mill facilities in order to take care of the high priority war orders which could not be filled from foreign sources ....

2. During the Second World War and the Korean conflict, Canadian users of (rolled) zinc had to rely on the Burgess rolling mill for a substantial portion of their requirements ....

3. During the wartime periods of shortage, the Burgess mill was operating almost at capacity; with the end of wartime shortages, users turned to imports, with the result that the mill is now operating at about 25 p.c. of capacity.

4. Burgess has to meet the United States prices of rolled zinc, favoured at present by the premium on Canadian funds.

5. Burgess pays more for its raw material (slab zinc) than do rollers in the United States.

6. Rolled zinc must be sold in competition with other metals, e.g., aluminum, brass, copper and magnesium, all of which enjoy tariff protection. If substantial and well established Canadian industries producing these metals require tariff protection, it is reasonable to assume that protection is required by Burgess.

7. The existing duty-free entry into Canada enables mills in the United States to ship into Canada, whereas United States duties on rolled zinc prevent the Canadian producer from shipping to that country.

8. Very little profit, if any, was derived during recent years by Burgess from its sales of rolled zinc.

More than a dozen firms opposed the proposals advanced by the Burgess Battery Company; most of these were Canadian users of zinc but also included were the British Non-Ferrous Metals Federation and two producers in the United States who market rolled zinc in Canada.

The National Carbon Company, Division of Union Carbide Canada Limited, Toronto, opposed any increase in rates. This firm imports uncoated rolled strip - dutiable under item 345, slugs or discs - dutiable under item 346a, and strip coated on one or both sides - dutiable under items 346 or 362c. The National Carbon Company is a competitor of the Burgess Battery Company in the production of dry-cell batteries in Canada and the zinc it imports is used in the production of such batteries.

In giving evidence before the Board, representatives of the National Carbon Company stated that "we do not feel that an adequate Canadian source currently exists ... the only Canadian producer (of rolled zinc) is also a competitor in the dry battery business. There are several serious problems associated with our being dependent on a competitor for our supply of zinc." This firm also claimed that a further serious handicap to doing business with Burgess was the



quality of that company's zinc. In its brief to the Board it said: "... Even minor deviations from zinc specifications can cause critical problems, either in fabrication or in the quality or service of the finished battery .... A review of our laboratory files for this period\* reveals that the use of Burgess zinc was accompanied by a continual series of rather serious quality-problems which had not been solved when an easing of the supply situation made it possible for us to revert to our former supplier." This statement was supported by submission to the Board of a file of correspondence between officials of the two companies respecting difficulties apparently experienced in the use of zinc supplied by Burgess.

The spokesman for the National Carbon Company commented on the fact that Burgess is the only Canadian source of supply for rolled zinc. In this regard he said: "... Our operations would be paralysed by a prolonged zinc shortage .... With zinc in short supply, it would be both reasonable and natural for a supplier, who is also a competitor, to look to his own interests first. This possibility of prejudicial treatment raises a strong objection to imposing a tariff on rolled zinc until a disinterested Canadian supplier becomes established." In reply to these comments, the representative of Burgess pointed out that when zinc had been in short supply in the period 1950-53, National Carbon had turned to Burgess as a source of supply and had obtained a major part of its requirements, despite a critical overall shortage; he added that Burgess would continue this sales policy and would not discriminate against any buyer.

With respect to its use of coated zinc, National Carbon stated that this product is not produced in Canada and that the limited demand would not justify the capital investment required for its production. This statement was not disputed at the public hearings by spokesmen for Burgess or other interested firms.

National Carbon also emphasized that "... having a competitor supply our rolled zinc ... would provide him with a full knowledge of our plant output and of certain production practices and developments related to our use of zinc. We regard information of this kind as very confidential and potentially valuable to a competitor."

Lastly, it was argued that a tariff imposed on imported zinc slugs or discs would make it uneconomic to extrude zinc cans in Canada. "Despite a  $22\frac{1}{2}\%$  duty on zinc cans imported for battery use ... the low-cost, high-volume production of finished cans in the United States made the expenditure last year of funds to permit the

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\*From 1950 to 1953, the National Carbon Company purchased rolled zinc from the Burgess Battery Company.

extrusion of Canadian cans a barely satisfactory investment. A duty on zinc slugs or discs may worsen the comparison to the point where Canadian can manufacture can no longer be economically justified ...."

In conclusion, the National Carbon Company requested:

That uncoated rolled zinc (dutiabale under item 345) and slugs or discs (item 346a) for the manufacture of dry-cells for batteries should continue to be free of duty.

That coated rolled zinc for the manufacture of dry-cell batteries be duty-free instead of dutiable at  $17\frac{1}{2}$  p.c. as at present under item 346.

General Dry Batteries of Canada, Limited,\* Toronto, also requested that zinc slugs for the manufacture of cups for dry-cell batteries should continue to enter duty-free. At the hearing, representatives of this firm stated that zinc slugs are the largest single cost element in the production of dry-cell batteries and the imposition of a duty would mean an important increase in costs and consumer prices. The slugs imported by this firm from its parent company are, it stressed, manufactured from Canadian zinc. Further, their company had never been approached by any Canadian producer with a view to supplying zinc slugs. General itself, he said, had sent an inquiry to Burgess in April 1957; this had resulted in a quotation of a price which was 20 p.c. higher, f.o.b. Niagara Falls, than the price f.o.b. United States producing plant.

In its brief General Dry Batteries also asserted that "... quite apart from the substantial cost increase we feel unable to assume, our position in relying upon Burgess for substantial quantities of production material would be untenable for these reasons:

(a) our purchases in the required substantial quantities would disclose to a competitor, in large part, the volume of our production.

(b) maintaining uniform production in our plant would be contingent upon deliveries of essential materials from a competitor."

Lastly, General stated that the protection on finished batteries is sometimes low or even non-existent. Upon being questioned on this point, however, the company's representative stated that probably only a small portion of its output was not protected by customs duties.

A third manufacturer of batteries, Cipel (Canada) Limited, Valleyfield, also expressed the hope that rates of duty applicable to zinc for use in batteries would not be increased. This firm

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\*Now known as the Mallory Battery Company of Canada, Limited.



uses zinc in both sheets and ingots in the manufacture of batteries. It produces batteries for use in aids to navigation and for railway signalling and a considerable portion of its output is not protected by duties.

Representations at the public hearing were made by a number of firms respecting zinc strip and sheet for lithographing (duty-free under item 345) and photo-engraving (duty-free under item 346c). The Canadian Lithographers' Association Incorporated expressed deep concern about the possibility of a duty on lithographic zinc sheets. It stated that such sheets are not produced in Canada. The Association's brief said also that "Actually, lithographic zinc is petering out, and grained aluminum and pre-sensitized plates are increasing in use .... The use of lithographic zinc would be further curtailed by augmenting the cost through added duties."

A representative of the W.E. Booth Company Limited, Toronto, said that his company imports unpolished sheet for photo-engraving under item 346c (duty-free). This type of zinc was not produced in Canada and the limited market would not justify the installation of equipment for its production. This firm therefore requested that duty-free entry be continued.

Latimer Limited, Toronto, in its brief to the Board, asserted that sheet zinc for photo-engraving could not be economically produced in Canada. The successful operations of finishers for photo-engraving depended, therefore, on their obtaining supplies of the proper grade of zinc for photo-engraving from the United States. This firm requested that free entry be continued. Latimer Limited also prepares zinc for lithographing. The required grade of rolled zinc for this purpose must be imported and the application of a duty would simply increase costs, in the view of the President of this company.

Views similar to those expressed by W.E. Booth Company Limited and Latimer Limited were submitted by two other firms which process imported zinc sheet for use in lithographing. These firms are General Printing Ink Corporation of Canada Limited and The Ault & Wiborg Co., of Canada Limited; both firms requested that free entry be continued for zinc sheet for further processing and for use in lithographing.

The B. Greening Wire Co. Ltd., Hamilton, informed the Board that it uses zinc sheets and rod in its operations, which materials enter at Free and 1 ct. per lb. (M.F.N.) respectively. The sheet is perforated for use in seed cleaning and grading equipment, which also enters duty-free. The rod is drawn into wire which is subject to an M.F.N. duty of 20 p.c. With respect to perforated sheet, the Company's representative informed the Board that the volume used in Canada is small and consequently costs of production are high. In order that this situation be not worsened, he requested that there



be no increase in rates; also that the rate on bars either remain as is or be decreased, since zinc in this form is not produced in Canada.

The Canada Wire & Cable Company, Limited, which also produces wire from rod, requested that the duty on rod be reduced since rod is not produced in Canada.

Great-West Metal Products Ltd., Winnipeg, in a brief filed with the Board, registered opposition to any change in the duties on ribbon zinc, which it imports duty-free, or on jar rings, which it manufactures therefrom. The latter product is dutiable at  $17\frac{1}{2}$  p.c. This firm's brief stated: "At one time, the 'jar rings' sold in Western Canada, were brought in from the United States. By close attention to costs and by adopting efficient manufacturing methods, we have been able to build up a good portion of that business for Canadian industry and Canadian workmen. It is important, at this juncture, to point out that an upward revision in the duty on raw zinc, without a corresponding increase in the manufactured product, could result in American manufacturers of jar rings entering the Western Canadian market with the resultant loss of this business to our firm .... We strongly urge that no change be made in the tariff status of ribbon zinc or zinc jar rings."

The proposal that the status quo be maintained was supported by the Canadian Terrazzo and Mosaic Contractors' Association, Toronto and by A.C. Leslie & Co. Limited, Montreal.

The views expressed by the Canadian users of rolled zinc were supported by three non-Canadian suppliers, namely, The British Non-Ferrous Metals Federation (United Kingdom); the Illinois Zinc Company, Chicago, Illinois; and Matthiessen & Hegeler Zinc Co., LaSalle, Illinois.

The brief of The British Non-Ferrous Metals Federation stated in part ... "should this domestic industry receive heavy tariff protection, the Canadian customer requiring non-standard specifications and sizes will be penalized in respect of price and of delivery .... A further point which should be considered is that the United Kingdom is a large buyer of high-grade zinc from Canada ...."

The Illinois Zinc Company, Chicago, presented a brief to the Board and also was represented at the public hearings. This firm requested that duty-free entry status of zinc sheet, strip and plate be retained and that alloyed zinc be classified for duty purposes with non-alloyed forms of zinc. In support of this latter request, the brief submitted to the Board said: "Electrolytic slab zinc, which is pure for practical purposes, is unsuitable for rolling into most commercial forms, for the reason that it is too soft .... As a result, it has long been the standard practice of rolling mills to

blend electrolytic slab zinc with lower grades of slab zinc to secure the desired physical properties in the end product. It is also common practice - where special strength is an ultimate requirement - to introduce small, carefully controlled quantities of copper, chromium ... into the zinc." The brief explained that all rolled zinc contains either added alloying metals or else natural impurities of iron, lead, cadmium, and copper in varying amounts.

This firm also stated that it uses large quantities of Canadian zinc in its processing operations, some of which is returned to Canada in the form of strip, sheet or plate. Of these forms, some were not available from Canadian production (i.e. sheet or strip for lithographing or photo-engraving; pack-rolled sheet and wide sheet).

The Matthiessen & Hegeler Zinc Co., LaSalle, Ill., informed the Board that it produces slab zinc from ore concentrates imported from Canada, the value of such imports being about six million dollars annually. From these concentrates, strip, sheet, plate, rod, lithographing and photo-engraving zinc are produced. It requested that these products should continue to enter free of duty.

The American Nickeloid Company of Peru, Illinois, submitted a brief explaining that it produced so-called "preplated" zinc, i.e. zinc sheet or strip coated with nickel, chrome, copper or brass. These products are classified under item 346 and are dutiable at  $17\frac{1}{2}$  p.c. M.F.N. In its brief, this firm states that to the best of its knowledge preplated zinc is not produced in Canada and because its price averages from 50 to 60 cents per lb. it does not compete directly with non-plated zinc which is listed at about 21 cents in published price lists. This firm therefore requested that this duty be reduced.

In a more specialized category than the preceding representations dealing with rolled zinc in its various forms, were the representations of the General Smelting Company of Canada, Ltd., Hamilton. This firm produces zinc dust for sale to mines for use in refining operations. Representatives of the firm requested that the dust, which is at present free of duty, be given some protection. That import competition existed was confirmed by a United States producer present at the hearing. Question arose during the hearing as to whether it is possible to distinguish zinc dust from granules and there appeared to be general agreement that it would be difficult to segregate the two and that any attempt to do so might lead to administrative problems.

As will be seen, proposals respecting changes in the tariff related only to zinc in processed forms. None of the fabricators suggested any change in the tariff applying to zinc in primary forms. Furthermore, the primary producers of zinc in Canada specifically requested that no upward revision in rates of duty be recommended by



the Tariff Board. However, they stated that they would be agreeable to a reduction in the rates on primary zinc, provided that similar action were being taken by the United States. This position was taken by the Canadian Metal Mining Association, representing mining interests, and by the two Canadian smelters of zinc: Consolidated Mining and Smelting Company of Canada (Cominco) and Hudson Bay Mining and Smelting Co., Limited. At the public hearing representatives of Cominco made the following statements:

"Cominco wishes to increase consumption of zinc in Canada by all appropriate means .... However, it is obvious ... (that) Cominco must rely on export markets for the disposal of a major portion of production. One of the most important of these export markets is the United States where 52% of the exportable surplus, which has a gross value of more than \$20 million, is sold. Cominco therefore cannot afford to jeopardize its position in this most important market, although we recognize that an anomaly exists in the Customs Tariff with respect to zinc and manufactures of zinc ...." And, with respect to tariff item 345a, "zinc spelter and zinc in blocks, pigs, bars, rods, or granular form; zinc plates, n.o.p., we are convinced that increased duties would be quite undesirable because of possible reciprocal action on the part of the United States which would greatly reduce the market available to Canadian products."

The Canadian Metal Mining Association, supported by the Hudson Bay Mining and Smelting Company, made the following statement in a brief presented by the Association:

"Canadian zinc producers are ... deeply concerned at the prospect and the consequences of international repercussions if any increases in Canadian rates of import duty on zinc and manufactures of zinc are put into effect at this time. Such repercussions could inflict great damage and hardship upon an important and substantial Canadian industry and one which is heavily dependent on export markets.

"For some years past zinc has been in reasonably abundant supply. As a consequence, very strong pressure has been brought to bear on the United States Administration by the domestic producers of that country to raise tariff rates against zinc imports, or to impose quota restrictions.

"If consideration is to be given to increased duties on zinc imports into Canada at this time, it should be given only in the light of these facts and with a full understanding of the probable consequences."



## PART II

The following information has been compiled in order to assist the reader to understand and to evaluate the various points of view and the specific proposals for tariff changes which have been outlined in earlier sections of this Report. This Part (II) deals with such matters as the relative size of the various segments of the zinc industry; with employment, production, technology, consumption, imports and exports, etc.

### ZINC IN PRIMARY FORMS

The primary producers of zinc, namely, the mines and smelters, comprise vastly the greater part of the zinc industry in Canada. Such producers are located in most of the provinces; in two provinces, Manitoba and British Columbia, zinc mining and smelting is a major industry.

#### Production of Zinc,\* 1955

<u>Province</u>	<u>tons</u>	<u>\$'000</u>
British Columbia	215,886	58,937
Quebec	101,431	27,691
Saskatchewan	48,960	13,366
Newfoundland	28,636	7,818
Manitoba	17,966	4,905
Yukon	10,912	2,979
Nova Scotia	8,018	2,189
Ontario	1,548	423
Total	<u>433,357</u>	<u>118,308</u>

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\*Zinc content of mined ore

Source: Bureau of Statistics

Between thirty and forty mines produce zinc concentrates in Canada; however, the bulk of total output is by The Consolidated Mining and Smelting Company of Canada Limited (Cominco) and Hudson Bay Mining and Smelting Company Limited. These firms operate the only two zinc smelters in the country, that of Cominco being located at Trail, British Columbia, and that of Hudson Bay at Flin Flon, Manitoba. It is understood that these two basic producers smelt their own concentrates plus small tonnages purchased from independent mines. Concentrates produced by independent mines in British Columbia are shipped to smelters in the United States for refining; concentrates produced in provinces east of Manitoba are usually smelted in the United States, although small quantities find their way to the United Kingdom and other overseas markets.

As the primary producers pointed out in their briefs, Canadian production of zinc concentrates and of refined metal is largely for external markets. The domestic market, which has expanded greatly in recent years with the development of galvanized steel production in Canada, still consumes less than 15 p.c. of total domestic output of primary zinc. The United States is the largest purchaser of Canadian zinc, having imported in 1956 173,324 tons of concentrate valued at \$23,501,976 and 115,890 tons of refined zinc valued at \$31,077,002. In other words, exports to the United States alone are four or five times the consumption by domestic users. The United Kingdom is also a substantial importer of Canadian zinc, having purchased 70,000 tons in 1956. The following table shows production and exports of zinc (tons of 2,000 lbs.):

Zinc concentrates:	<u>1955</u>	<u>1956*</u>
Production	433,357	423,620
Exports	190,585	199,313

Refined Zinc:

Production	256,542	255,600
Exports	213,837	183,728

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\*Preliminary

Imports of zinc or zinc products and derivatives into Canada are very small, as shown in the following table (tons of 2,000 lbs.):

	<u>1955</u>	<u>1956</u>
Dust	419	491
Blocks, pigs, bars, rods, plates	50	76
Sheet, strip, plate for marine boilers	1,841	1,615
Oxide	805	628
Sulphate	1,415	1,189
Chloride	129	217
Lithopone	1,894	2,295

Summary: Canadian primary zinc producers export the major part of their production of zinc — 383,000 tons, of 423,000 produced in 1956. The United States and United Kingdom are the major markets. Imports are negligible. Employment in zinc mining and smelting amounts to several thousand workers.

## CONSUMPTION OF ZINC

More than half of all the zinc consumed in Canada is used in galvanizing — in coating steel with zinc, usually by dipping the steel into a bath of molten zinc. Die-casting accounts for nearly 15 p.c. of zinc consumption; alloying of brass and bronze, 12 p.c.; oxides, 12 p.c. Rolled zinc, with which this reference is primarily concerned, is well down the list, accounting for only 3.8 p.c. of total domestic usage in 1956. Furthermore, the 2,387 tons of zinc used in rolled form in that year amounted to a fraction of one per cent of total Canadian production of zinc.

### Consumption of Slab Zinc in Canada (tons of 2,000 lbs.)

	<u>1955</u>	<u>1956*</u>	<u>p.c.</u>
Hot-dip galvanizing	26,955	32,125	51.6
Electro-galvanizing	1,091	1,129	1.8
Die-cast alloy	10,464	9,252	14.9
Brass and bronze	9,350	7,700	12.4
Oxide	7,141	7,494	12.0
Rolled	2,533	2,387	3.8
Castings	603	753	1.2
Other alloys	678	693	1.2
Other uses	797	752	1.1
Total	59,612	62,285	100.0

\*Preliminary

Source: Department of Mines and Technical Surveys, as revised by the Tariff Board. The figures for rolled zinc have been revised in an attempt to show a more comprehensive figure for consumption of rolled zinc. This has been done by adding sales by the Burgess Battery Company to imports of strip, sheet, and plate for marine boilers. The changes in the figures for rolled zinc have also resulted in changes in the totals for overall zinc consumption.

Not only is the consumption of rolled zinc very small, but figures compiled by the Board indicate that demand in Canada for this product is rapidly diminishing. This trend is in contrast to the world demand for zinc in all forms, which has been increasing in recent years, but reflects similar trends in the United Kingdom and the United States, where the overall usage of zinc is increasing while the demand for rolled zinc is declining.



Zinc Consumption  
(tons of 2,000 lbs.)

	<u>Canada</u>		<u>United Kingdom</u>		<u>United States</u>	
	Total	Rolled	Total	Rolled	Total	Rolled
1949	45,669	3,197	322,158	28,219	711,800	55,200
1954	48,108	2,088	363,459	25,512	884,299	47,486
1955	59,612	2,533	388,189	25,835	1,078,968	50,363
1956	62,285	2,387	353,596	26,245	977,697	45,382

Sources: Bureau of Statistics; Year Book, American Bureau of Metal Statistics, 1956.

The above figures show that Canadian usage of rolled zinc, in relation to total zinc consumption, is about the same as in the United States, but lower than in the United Kingdom, where the product has had a long history of utilization. The following figures show flat-rolled zinc in terms of percentages of all zinc used, in 1955:

<u>Canada</u>	<u>United Kingdom</u>	<u>United States</u>
4.249	6.655	4.67

In speaking of the decline in the usage of rolled zinc, at a time when other uses for zinc appear to be increasing, representatives of the industry felt that the decline could, in part at least, be attributable to a lack of promotion of this product on the part of the producers. In addition, they stated that rolled zinc had certain physical properties which sometimes caused difficulties for users: among those named were "creep", expansion and contraction under varying conditions of weather, lack of structural strength, and difficulties in soldering, due to low melting point. On the other hand, one user of rolled zinc stated that the welding difficulties were not great; furthermore, it was conceded that for a number of applications structural strength was not a factor. The Board was therefore left with the impression that lack of research as to new uses (coupled perhaps with indifferent sales-promotion) was a basic reason why demand for rolled zinc had fallen off. Other types of flat-rolled metal, e.g., aluminum, galvanized steel and copper, had taken over applications formerly shared with zinc to a greater extent. In this regard, the quantity of zinc used in such applications as screw-on jar tops, roofing, weatherstripping and plates in boilers and ships' hulls has been greatly reduced in recent years.

## HOW ROLLED ZINC IS MADE

The process utilized by the Burgess Battery Company in rolling zinc may be described as follows:

Zinc slab, purchased from Canadian smelters, is delivered to Niagara Falls by railway carrier and stored until used. The first operation is to melt the virgin slabs and to alloy the metal while it is in the melted state. The melting is done in two types of furnace - one of these is a 40-50 ton capacity reverberatory oil-heated furnace; the second, an electric Ajax low-frequency induction furnace of 2,000 lbs. per hour capacity.

The oil-heated reverberatory furnace is automatically controlled so that the molten metal bath is constant, within one p.c. temperature variation, at 925° F. Steps are also taken to control the temperature and to prevent oxide formation in the space above the molten metal. Virgin metal or remelt scrap may be fed in at the slab-feed doors or in the remelt scrap well; molten metal is withdrawn at the opposite end of the furnace. The various wells are separated from the furnace interior by brick arches so that contact with the outside atmosphere is always sealed off; thus a dross-free metal flows out beneath the arches. This type of furnace can readily cast 20 tons per shift. As a rule it is used for melting alloys only for very large orders. Alloys in smaller quantities are melted in the Ajax electric furnace where every charge is separately prepared.

The molten metal is cast in horizontal open-top moulds which are water cooled. After solidifying, the cast billets are moved into annealing or soaking ovens to permit uniform heating throughout each billet. Such billets vary in size according to their ultimate use and may weigh up to 500 lbs.

After the billets have soaked for eight hours or more they are rolled in the breaking or rough-rolling mill, which is a two-high one-stand mill, and reduced from 1-2 inches in thickness to approximately .070 inch. Such reduction requires a number of passes, the metal being returned over the mill after each pass. On the final pass the strip is coiled and stored.

The finish rolling is done on a two-high one-stand mill with a 24-inch roll width. This mill is very finely calibrated for roll space setting since most strip is rolled to  $\pm .0005$  inch and some to  $\pm .00025$  inch. The strip is continually gauged by a Pratt and Whitney electrolimit gauge. This will reduce the metal from .075 inch to .0075 inch in a number of reduction cycles.

Most zinc is hot-rolled at temperatures ranging from 200-300° F. In the finishing rolling, the heat is generated in the rolling by the amount of reduction in each pass - the greater the reduction the more heat. In this manner the metal is annealed in the rolling and yields a softer material having increased ductility.



A certain volume of zinc is cold-rolled by very light passes which generate little heat. This results in a fractured crystal structure which is not annealed. Such metal has a low ductility and high temper.

Following finish rolling, the coils are edge trimmed and inspected. Samples are taken from each coil and checked for ductility and temper and are analysed by spectrographic and chemical means.

To permit comparison with operations in other mills, the following material is extracted from a description of a zinc rolling mill in the United States, as contained in a report of a Technical Assistance Mission under the sponsorship of the OEEC\*:

"Zinc is generally melted in large brick lined reverberatory furnaces of 60 up to 160 tons. These are heated by gas, or if it is more convenient, by coal, sometimes using a mechanical stoker. The quantity of fuel is automatically controlled by a thermostat in the furnace. It is claimed that the temperature of the metal available for casting is controlled to within 5° C.

"At the discharge end of the furnace is a dipping well with a brick arch between it and the main bath of metal which ensures that only dross-free metal is available for pouring.

"These large furnaces are used to produce metal to the specification required by the major orders received by the plant. For convenience, any special metal compositions which are required in comparatively small quantities, are produced from Ajax low-frequency induction furnaces of 2,000/5,000 lb. (900-1,150 kg.) capacity. Each furnace produces about 10 tons per shift.

"Metal required for rolling into sheets is cast into horizontal open-top cast iron moulds which are either stationary or on a revolving casting wheel. The mould temperature is maintained between 70-95° C. Arrangements are made so that the under surface of the moulds can be cooled by water. Gas heated covers are sometimes used to delay the surface of the metal from setting.

"Metal required for rolling into strip is often cast into enclosed horizontal moulds which are slowly tilted to about 15° from the vertical. The cakes weigh from 600 to 1,200 lb. (270 to 540 kg.) each and measure 70 in. long x 3¼ in. thick x 10/20 in. wide (1,750 x 80 x 250/500 mm.).

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\*Non-ferrous Heavy Metal Fabrication in the U.S.A., Technical Assistance Mission No. 79.

Published by the Organization for European Economic Co-operation under the symbol TAR/79(52)1, March 1954.



"This is hot rolled in 3 stages, breaking down, intermediate and finishing. The edges are not trimmed until the strip is at finished thickness.

"The cakes used for strip are normally  $3\frac{1}{4}$  in. (80 mm.) thick and 16 in. (400 mm.) wide weighing 960 lb. (430 kg.). These are first annealed at  $230^{\circ}$  C for 12 hours before rolling. The breaking down process is carried out in batches of ten cakes using a mill with internally steam heated rolls and equipped with a conveyor system to transfer the material round the mill. 15 passes are given for  $3\frac{1}{4}$  in. to 0.16 in. (80 to 4 mm.), the reductions per pass range from 15 to 50%; the rolling lubricant is palm or lard oil.

"Strip is normally rolled at a standard width of 16 in. (400 mm.) and only occasionally up to 20 in. (500 mm.) wide.

"The intermediate rolling is carried out on a tandem 2-high mill where the thickness is reduced from 0.16 to 0.065 in. (4 to 1.7 mm.) in one pass through the two mills.

"The finishing rolling is on two high mills running at a speed of 170 feet per minute (52m/min.) at a temperature of about  $130^{\circ}$  C. The strip is reduced from 0.065 to 0.014 in. (1.7 to 0.35 mm.) in 3 passes.

"The temperature of the metal at each stage of the strip rolling process is automatically regulated by the rate of flow between processes without any intermediate heating. There are often two coilers fitted to one mill to save idle time.

"The yield is understood to be 60 to 70% of the cast cake.

"In a plant producing strip amounting to 1,100 tons per month, the production was stated to be 150 lb. (70 kg.) per man hour."

From the above it is clear that the United States plant described is considerably larger than that operated by Burgess Battery. The OEEC study mentions output at the rate of 1,100 tons per month - as much as Burgess sells in an entire year. The reverberatory furnaces in the United States plant take charges ranging from 60 to 160 tons as against 40 to 50 tons for the one similar furnace at Niagara Falls. There are three rolling mills in the United States plant, one of which is a two-stand mill, as compared with two single-stand mills in the Canadian plant. In spite of differences in size, however, productivity at the Burgess mill seems to compare very favourably with the figure shown above for productivity per man hour in the United States mill.

Products: The rolling equipment in the mill operated by Burgess enables that firm to produce zinc ribbon or strip and sheet or plate to a maximum width of 24 inches. The relatively narrow width of the

rolls permits rolling of the metal in one direction only, i.e., with the length of the coil. It is understood that such mills are referred to as "strip mills" in the trade, even though in fact they roll zinc to certain sheet-widths.

Sheet zinc more than 24 inches in width cannot be rolled in Canada and must be imported. It is made on a wide mill, often of 72 inches, which rolls a sheet of (maximum) dimensions, 60 inches x 144 inches and up to one-half inch thick. Such sheet is produced by the "pack" rolling method, i.e., by passing an entire pack or bundle of sheets through the rolls simultaneously; a pack may consist of as many as 50 sheets. In this manner, most of the sheets are not touched by the rolls and the resulting finish of each is smooth and free from surface defects. A further departure from strip rolling methods is the "cross" rolling of sheet whereby the sheet is passed through the rolls both lengthwise and widthwise. The Board is informed that cross-rolled sheet has greater tensile strength and a better surface-finish, essential in respect of lithographing and photo-engraving.

Burgess is not equipped to roll or extrude zinc shapes or sections. It does not produce strip, sheet or plate of lithographing or photo-engraving grade; neither does it grind zinc nor coat it with other substances. It does not produce bars or rods. (Since the zinc industry does not, apparently, have generally accepted dimensional standards, there is no agreement as to the line of demarcation between bars and rods or between bars and plate.)

Employment: Burgess reports that it has employed 38 workers in its rolling mill at peak production in the past. At the public hearing a representative of the company stated that 16 persons were then participating in rolling operations.

Raw Materials: In its brief to the Board, Burgess asserted that it pays more for its slab zinc than do rollers in the United States. The brief stated that "United States rolling mills buy zinc slab at the East St. Louis price in United States dollars, whereas Canadian rollers must pay the identical price in Canadian dollars. Thus, the Canadian roller pays more for slab zinc by the amount of the premium on Canadian dollars."

Prices of Primary Zinc: The Board has examined prices of primary zinc in some detail and believes that the following data give a fairly complete and accurate picture of prices for slab zinc of prime western grade in Canada and in the United States.

Burgess uses two grades of slab zinc in its operations: prime western and a special alloy. Since the prime western is common to both Canada and the United States, the comparison has been made for this grade:

Prime western grade of zinc at the date of hearing sold at most consuming points in Canada at  $11\frac{1}{2}$  cents (Canadian) per pound c.i.f. customer's plant. In other words, the Canadian roller



paid  $11\frac{1}{2}$  cents, inclusive of freight, insurance or any other charge. In the United States, prime western was selling for  $11\frac{1}{2}$  cents (U.S.) at East St. Louis. For deliveries to other points in the United States, rollers had to pay the first one-half cent of freight (from East St. Louis to their mills). Practically all the United States mills which export to Canada therefore paid the one-half cent freight since they are located at some distance from East St. Louis. The net price of prime western to United States rollers, terms of United States currency, was therefore 12 cents per pound, as compared with  $11\frac{1}{2}$  cents paid by Canadian rollers in Canadian currency. This, converted to Canadian currency at approximately the rate of 4 p.c., became 11.52 cents - almost exactly the price, in terms of Canadian currency, paid by the Canadian roller. (The United States price is inclusive of import duties.)

Evidence at the public hearing suggested, however, that rolling mills in the United States do, in effect, pay lower prices than those indicated above for at least a portion of the primary zinc they roll and ship to Canada. This results from their practice of using Canadian or other imported zinc concentrates in producing for export. On importation of concentrate into the United States, the roller pays a duty of .6 cent per pound on the zinc content. Ninety-nine per cent of this duty may be refunded when the zinc rolled therefrom is exported to Canada. Thus, to this extent, the primary zinc used by a mill in the United States may be .6 cent per pound cheaper than that used by the Canadian mill.

Three United States suppliers confirmed that they were using Canadian zinc in their production processes and that they obtain a drawback of duties when they export to Canada, thus reducing the price paid by them by about .6 cent. A representative of the General Dry Batteries Co. Inc. of Dubuque, Iowa, stated that "the imported slugs are made exclusively from Canadian zinc exported to the United States in ingot form ... (General Dry Batteries) is regularly paid drawback of United States customs duty paid on the Canadian zinc entering into the United States, in respect of the slugs re-exported to Canada." A spokesman for Matthiessen & Hegeler Zinc Co. of LaSalle, Illinois, testified that "... we produce slab zinc made from zinc ore concentrates imported from Canada. Our purchases of zinc ore concentrates from Canada amount to six million dollars yearly." This spokesman confirmed that drawback of duty is received for exports to Canada. Lastly, a representative of the Illinois Zinc Company of Chicago, Illinois, said -

"We use large quantities of electrolytic slab zinc in our rolling mills, which we purchase from Canadian producers. Much of this slab zinc is used in the manner described above, and the end product is properly described as sheet, plate, strip, etc. ...." This firm exports these products to Canada.

In tabular form, a comparison of primary zinc prices shows as follows:



Prices of Prime Western Zinc  
(cents per lb.)

<u>Canada</u>	<u>United States</u>
11.50 cts. (Canadian) c.i.f. roller's plant	11.5 cts. (U.S.) E. St. Louis .5 cts. freight <u>12.0 cts. c.i.f. roller's plant</u> less .6 cts. drawback of U.S. duty <u>11.40 cts.</u> less .45 cts. converting to Canadian currency at 4 p.c. <u>10.95 cts.</u>

Note: In the above illustration, the Board has shown prices prevailing at the time of its public hearing. Zinc prices have, in fact, changed a number of times since this study was initiated in April, 1957, ranging from 13.5 cents per pound to 10 cents (July 2). Because of the frequency of change, however, there is little point in attempting to base the computation on the latest price, which might again be revised in a matter of days or weeks. In any event, the relationship between Canadian and United States prices remains the same at the various levels.

The above would indicate that certain of the larger United States zinc rollers can, in fact, obtain their primary zinc requirements for export for less money than Burgess — but not for the reason advanced by Burgess.

In the United Kingdom, the prices paid for zinc are usually related to those quoted on the London Metal Exchange. On the basis of such quotations, zinc rollers in the United Kingdom would seem to obtain their requirements of primary zinc at somewhat lower prices than do Canadian mills. It is impossible, however, because of basic differences between the Canadian and British pricing systems to estimate the difference in prices. For example, the most-favoured-nation duty of 30/- per ton, must be added to the published price of zinc — regardless of the country of origin; in other words, Commonwealth zinc, although duty-free, has the 30/- added to the price. Secondly, the buyer must pay the freight to his mill from any one of a number of designated points in the United Kingdom.

Although the term "prime western" is not used on the London Metal Exchange, prices are quoted for virgin zinc of minimum 98 p.c. purity, sometimes referred to as G.O.B. (Good Ordinary Brand). This grade is understood to be fairly comparable with prime western. When the Canadian price for prime western grade was 13.5 cents per pound c.i.f. customer's plant in March 1956, the price quoted on the London Metal Exchange for G.O.B. was 11.68 cents (Canadian) ex duties and ex freight from port or warehouse to the roller's plant.

Production: Burgess started production of rolled zinc in 1940, "primarily because we required zinc strip for our own zinc battery cans which form the anode of the common zinc-carbon dry cell. We wished to have a source of strip not dependent on a foreign supplier and we always had the problem of disposing of the scrap yielded from trim in drawing round forms".

While the mill was at first intended mainly to supply Burgess' own requirements, the company found that "the shortage, during the war period, of zinc from outside sources warranted a second mill. This, of course, involved us in supplying a wide variety of types to most of the domestic Canadian market".\* In other words, the wartime curtailment of supply of rolled zinc from foreign suppliers to the Canadian market encouraged Burgess to expand its operations from the point of simply supplying its own requirements to one of supplying a considerable portion of total Canadian demand.

In post-war years, while the greater part of Burgess' production has been sold, a considerable part of output is still used by Burgess in the production of its own dry-cell battery casings. Production of zinc for sale is largely confined to those types used in the manufacture of food-jar rings and of terrazzo strip, and to a lesser extent in roofing, weatherstripping and boilers.

The history of post-war production of rolled zinc in Canada appears to show three distinct phases:

First, the years immediately after 1944, when zinc was in relatively free supply; during this period the needs of the domestic market could be supplied from either imports or Canadian output. As a result, Burgess' output was smaller than during periods of world shortage.

The second phase resulted from the outbreak of hostilities in Korea, which caused a world shortage of zinc, resulting in governmental allocations and restrictions in practically all zinc-producing or fabricating countries. Consequently, Canadian users of rolled zinc, who had been depending on imports for a considerable portion of their requirements, found, in many instances, that their foreign suppliers could no longer take care of their needs. They turned to the Canadian supplier to fill the gap in so far as zinc allocations would permit and under these circumstances Burgess increased its output substantially.

Following the easing of zinc supplies after 1952, Canadian users of rolled zinc once again turned to external sources of supply and production fell sharply at the Burgess mill. As foreign supply

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\*Recorded comments by V.A. Lee, General Superintendent, Burgess Battery Company before the Canadian Zinc Research and Development Committee.



became freer, domestic output continued to decline, until, in 1955 and 1956, the tonnages rolled were much below the levels prevailing in the early pre-war years and in 1951.

It would appear, therefore, that Canadian consumers of rolled zinc have shown a desire to purchase a goodly portion of their requirements from external sources whenever such sources are open to them. Conversely, only when they have not been able to purchase abroad, because of shortages, have domestic consumers given the major part of their business to Burgess.

Sales: In the preceding section, no figures relative to production have been shown; to show both production statistics and those for sales would disclose the quantities of zinc used by Burgess in its own battery manufacturing operations. This latter field is a highly competitive one, respecting which the release of such data might be of value to competitors. The Board has decided therefore that, in the circumstances, it should release figures on the basis of the volume of Burgess sales alone, thus not prejudicing that company's position as a battery manufacturer; the relevant aspect of Burgess operations is not its own consumption of zinc, but the level of its sales to outside users: the volume of independent demand for Burgess' rolled zinc production.

Consumption since 1945 of rolled zinc of Canadian origin has followed the same pattern as did production, the same three phases being apparent:

Sales of Canadian-Rolled Zinc\*

<u>Year</u>	<u>tons</u>
1945	926
1946	1,418
1947	1,303
1948	1,109
1949	1,093
1950	2,133
1951	2,759
1952	1,207
1953	1,003
1954	832
1955	692
1956	772

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\*Imports not included

The table shows that the demand for domestic-rolled zinc has been declining since 1951. This trend is true of most applications, perhaps the only exceptions being zinc for use in terrazzo



dividers and zinc boiler plates. For such other uses as jar rings, roofing, weatherstripping, addressograph plates and batteries, it has fallen off; for some uses, e.g., roofing, the demand has dropped from several hundred tons per annum to negligible quantities. Although Canadian-rolled zinc entering into jar rings and weatherstripping is now much less than in former years, these two uses, plus the requirements of manufacturers of terrazzo dividers, account for the major demand for rolled zinc of domestic origin.

Imports: The Bureau of Statistics shows imports of rolled zinc under two statistical headings. The first of these (s.c. 6113) deals with strip and sheet of all gauges and widths, for any purpose, whether coated or not. This item therefore includes a wide variety of sizes and types of zinc. The second classification (s.c. 6112) covers zinc in the form of blocks and pigs (which are not rolled sections) and bars and plate (which are rolled sections); in this latter item it is not possible to segregate the rolled from the non-rolled forms.

In order to obtain if possible more detailed data respecting the various types of rolled zinc being imported into Canada, the Board has attempted its own break-down, based upon imports for the year 1956, endeavouring to differentiate between types rolled in Canada and those not available from Canadian production. Although the total imports of rolled zinc, as shown by the Bureau of Statistics in published data, differ to some degree from the figures compiled by the Board, these differences are not great. The table below shows official Bureau figures for imports of strip and sheet of all types; also of blocks, pigs, bars and plate. From these data, it would appear that imports of rolled zinc have not shown an upward trend over the past nine years. Imports in 1955 and 1956 are, in fact, at somewhat lower levels than they were immediately prior to the Korean war or during that crisis (with the exception of 1952):

<u>Imports of Rolled Zinc</u> (tons)		
<u>Year</u>	<u>Strip and Sheet</u> <u>(s.c. 6113)*</u>	<u>Blocks, Pigs, Bars, Plate</u> <u>(s.c. 6112)</u>
1948	2,932	16
1950	1,730	36
1951	1,635	1,579
1952	729	521
1953	1,297	28
1954	1,256	97
1955	1,841	50
1956	1,615	76

\_\_\_\_\_\*Includes coated

Source: Trade of Canada, Bureau of Statistics

The above figures relate to total imports of rolled zinc products (plus blocks and pigs). However, a large proportion of such imports consists of types of rolled zinc not produced in Canada. In certain important instances these imported types do not compete with domestic output; e.g.: high grade polished zinc sheet and plate for lithographing; coated zinc, including those types coated with an acid-resisting material for use in photo-engraving. As previously stated, bars or rods are not rolled in Canada; in addition, the Canadian mill has a maximum rolling width of 24 inches, therefore any zinc sheet of greater width is not available from Canadian production. In an attempt, therefore, to segregate imports of types or sizes made in Canada from types or sizes not made in Canada, the following tables have been prepared:

Imports of Rolled Zinc - 1956  
(excluding imports of coated zinc under item 346)  
(tons)

	<u>Types and Sizes Made in Canada</u>	<u>Types and Sizes not Made in Canada</u>		
		<u>Coated for Photo-engraving</u>	<u>For Litho- graphing</u>	<u>Other, over 24" wide</u>
Maritimes	48.7	-	-	18.1
Quebec	201.1	-	56.4	78.3
Ontario	528.4	288.7	72.4	83.0
Western Provinces	123.1	-	.3	1.7
CANADA	901.3	288.7	129.1	181.1

as percentages of total imports:

	<u>Types and Sizes Made in Canada</u>	<u>Types and Sizes not Made in Canada</u>		
		<u>Coated for Photo-engraving</u>	<u>For Litho- graphing</u>	<u>Other, over 24" wide</u>
Maritimes	72.9	-	-	27.1
Quebec	59.9	-	16.8	23.3
Ontario	54.3	29.7	7.4	8.6
Western Provinces	98.4	-	.2	1.4
CANADA	60.1	19.2	8.6	12.1

The above attempted division of imports between types or sizes "made in Canada" and those "not made in Canada" must be read with qualifications. For example, the "made in Canada" column is overstated, since it includes imports of certain forms of zinc which are not available from Canadian production, e.g., rolled or extruded shapes and bars or rods. (The data available to the Board were not sufficiently detailed to permit their segregation.) The group



headed "not made in Canada" is, on the other hand, certain to be understated. The reason for this is that it has not been possible to identify and include imports of coated sheet or strip which have been classified under tariff item 346. In spite of these shortcomings, it is believed that the table does give a useful indication of the division of imports and that, with the above qualifications in mind, it should enable the reader to draw a number of pertinent inferences. To the extent that the table may be relied upon, its significance in respect of Burgess Battery Company is that imports of the types of zinc which can be made by it exceeded its own sales by a considerable amount; in other words, more than half of the domestic market for those types of zinc produced in Canada was supplied in 1956 by imports, as illustrated by the figures below:

<u>1956 - tons of 2,000 lbs.</u>	
<u>Sales by Burgess</u>	<u>Imports of Similar Types</u>
772	901

Of the types of zinc which are imported and are not available from Canadian output, the greatest tonnage consists of coated zinc, largely for the manufacture of dry-cell batteries and for photo-engraving. Imports for only the latter use are included in the preceding tables.

Imports by Regions or Areas: More than seventy Canadian firms imported rolled zinc in all forms and sizes in 1956. However, about a dozen firms, located in Quebec, Ontario and Manitoba, accounted for the major part of total imports. While imports into the Maritimes are considerably smaller than shipments into Central Canada, more than a dozen different firms in the Atlantic provinces imported zinc in small quantities in 1956. In many cases individual firms imported only a few tons in one year and some shipments amounted to only a few hundred pounds.

Ontario is by far the largest market for imported zinc (and for domestic production as well), with Quebec next, closely followed by Manitoba. While the great bulk of all imports of zinc is in the form of sheet and strip, other forms — notably plate, blanks, slugs, circles, rods, angle sections and tape — were imported. The following gives an approximately accurate picture of the regional break-down of imports:



# Imports of Rolled Zinc by Regions - 1956

		<u>Sheet*</u>	<u>Sheet Coated</u>	<u>Strip</u>	<u>Plate</u>	<u>Rods</u>	<u>Angles</u>	<u>Other</u>
Maritimes	tons	22.8	-	36.2	7.8	-	-	-
	\$	11,984	-	10,499	2,525	-	-	-
Quebec	tons	148.2	-	167.3	3.4	1.9	5.2	8.1
	\$	125,236	-	73,880	1,112	1,126	2,390	2,576
Ontario	tons	130.2	288.7	521.7	-	31.7	-	1.9
	\$	102,977	159,965	195,786	-	19,007	-	957
Western Provinces	tons	2.1	-	120.7	2.3	-	-	-
	\$	1,576	-	45,374	929	-	-	-
CANADA	tons	303.3	288.7	845.9	13.5	33.6	5.2	10.0
	\$	241,773	159,965	325,540	4,566	20,133	2,390	3,533

\*Includes sheet and plate for lithographing

Zinc strip and sheet, uncoated, enter under tariff item 345. Plate, on the other hand, is provided for under a number of items, depending on use — e.g., plates for marine boilers enter under item 345 duty-free; plates for other types of shipbuilding enter under item 440g duty-free; plates, n.o.p. enter under item 345a at  $\frac{3}{4}$  cent per pound B.P. and 1 cent per pound M.F.N. It will be noted from the table below that in 1956 the entire 13 tons imported into Canada entered duty-free under items 345 and 440g. In other words, all imports must have been for use in shipbuilding or in marine boilers:

## Imports of Plate Zinc - 1956

<u>Destination</u>	<u>Source</u>	<u>Tons</u>	<u>\$</u>
<u>Under Tariff Item 345</u>			
Maritimes	Belgium	4.9	1,606
Quebec	Belgium	1.4)	
	United Kingdom	2.0)	1,112
Western Provinces	Belgium	2.3	929
<u>Under Tariff Item 345a</u>			
Nil			
<u>Under Tariff Item 440g</u>			
Maritimes	United Kingdom	2.8	918
CANADA		13.4	4,565

The above material has dealt with the geographic distribution of imports of all types of rolled zinc. The table below shows imports, sub-divided by areas, into (a) types made in Canada (b) types not made in Canada. It can be seen that the major portion of imports entering the Maritime Provinces is of types made in Canada. This stems largely from the fact that the rolled zinc used in these regions enters into weatherstripping and not into industrial uses where specialties are required. That market for all types of imported rolled zinc is a small one, however, and if it were to switch from imports to Canadian products exclusively, the increase in Burgess' output would be insignificant.

In Quebec and Ontario the situation is quite different, with imports of types and sizes made in Canada making up only slightly better than half of total imports. The substantially higher proportion of "specialty" zincs which are not available from Canadian output results from the concentration in Central Canada of photo-engravers, lithographers and other trades requiring special types of metal. Although only a little better than half of the imports into these provinces are in types which could be made at Niagara Falls, in terms of tonnage it equals domestic output for sale.

In Western Canada, practically all imported zinc is of types or sizes made in Canada. The tonnage of such imports approximated about 15 p.c. of domestic output in 1956:

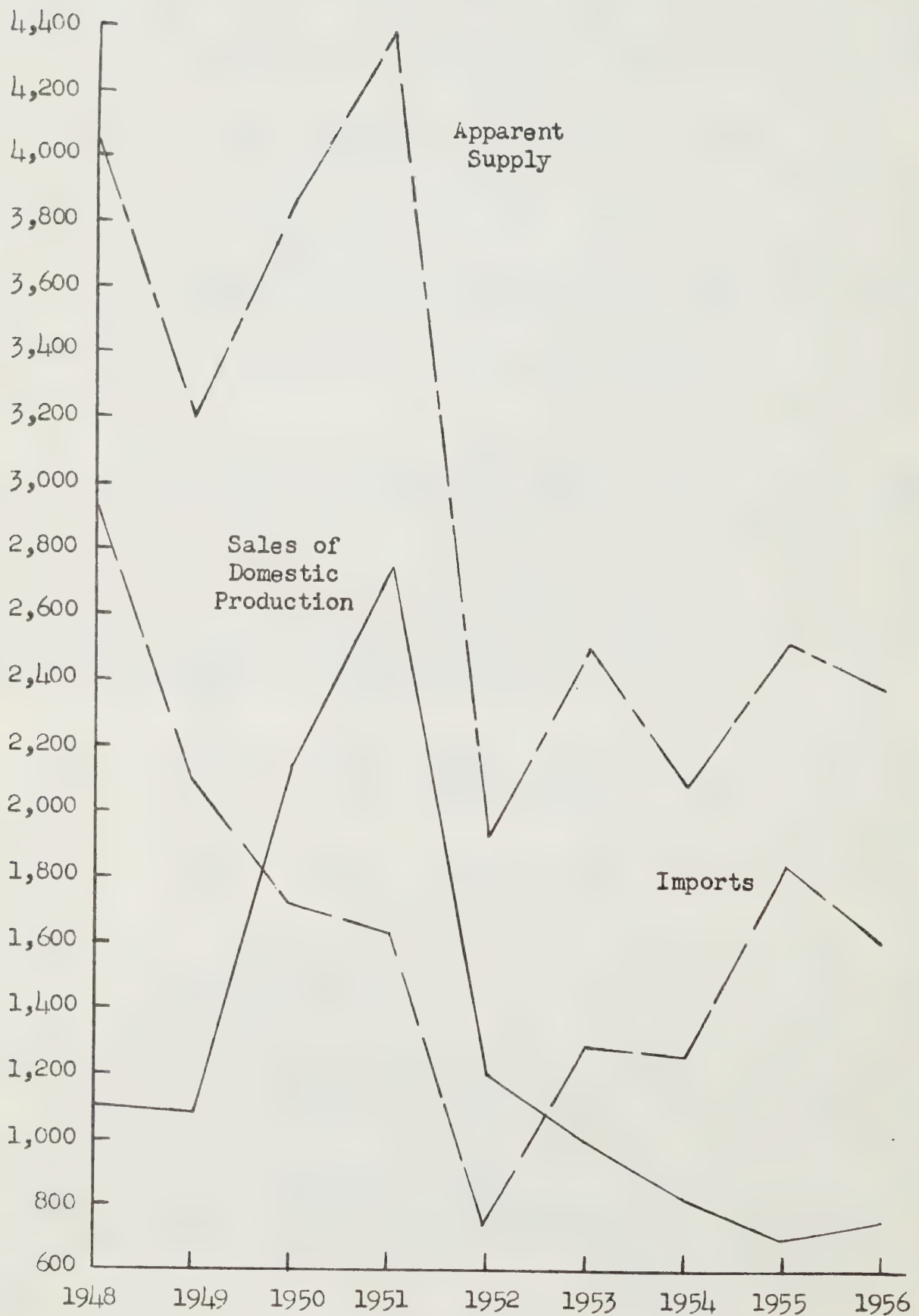
#### Imports of Rolled Zinc - 1956

	<u>Total Imports</u>		<u>Types and Sizes Made in Canada</u>		<u>Types and Sizes Not Made in Canada</u>	
	tons	p.c.	tons	p.c.	tons	p.c.
Maritimes	66.8	4.4	48.7	72.9	18.1	27.1
Quebec	335.8	22.4	201.1	59.9	134.7	40.1
Ontario	972.5	64.8	528.4	54.3	444.1	45.7
Western						
Provinces	125.1	8.3	123.1	98.4	2.0	1.6
CANADA	1,500.2	100.0	901.3	60.1	598.9	39.9

The United States is the chief source of zinc imports into Canada, supplying more than 60 p.c. of the total tonnage in 1956. That country's share of the import market has dropped sharply; in previous years it supplied a considerably greater proportion. On the other hand, shipments from the United Kingdom, Belgium and Germany have increased considerably in recent years, from a total of 114 tons to 676 tons. This shift in sources of supply reflects the very favourable prices at which overseas producers have recently been offering rolled zinc. In addition, the fact that zinc is now in abundant supply, coupled with the advantages of shipping by boat, has made it easier for overseas suppliers to enter the Canadian market to a greater extent.

## Rolled Zinc

Apparent Supply, Sales of Domestic Production, and Imports





European suppliers have tended to ship to Canada "regular" or non-specialized rolled zinc — types which compete directly with Canadian output. Their laid-down prices are attractive. Imports from the United States, on the other hand, contain a high proportion of specialty types not produced in Canada. There is evidence that users of "regular" zinc are turning from Canadian and United States sources of supply in favour of zinc from overseas.

(s.c. 6113)	<u>Imports of Zinc Strip and Sheet</u>			
	(tons)			
	<u>1949</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
United Kingdom	14	110	21	68
Belgium	100	235	278	132
Germany	-	130	471	376
United States	<u>1,990</u>	<u>781</u>	<u>1,071</u>	<u>1,039</u>
Total	2,104	1,256	1,841	1,615

Summary re Imports: The total tonnage of all imports of rolled zinc has not shown a tendency to increase in recent years. Imports of zinc in forms which compete directly with domestic production account for slightly more than half of Canadian consumption of such types of zinc. For non-specialty types of zinc, a switch appears to be under way from Canadian and United States sources of supply to European sources. The bulk of imports are made into Central Canada. Specialty zincs plus rolled shapes and extrusions cannot be obtained from Canadian production but must be imported.

#### INCIDENCE OF FREIGHT CHARGES

As is the case with practically all non-precious metals, freight is an important element in the pricing of rolled zinc and in establishing the competitive position of a producer in any given area.

The freight rates shown in the tables below have been made available to the Board by the Canadian producer of rolled zinc as well as by a number of importing firms. These latter firms have stated that the rates shown are those they have been paying and frequently they have supported their statements with documentation. It will be noted that there are considerable variations in the rates from specified shipping points to identical destinations, reflecting differences in mode of transportation, in method of packaging, in the route followed, and in size of shipment.

In the major market for rolled zinc, namely Toronto and Central Ontario, the Burgess Battery Company has a very considerable

freight advantage over non-Canadian suppliers. At Toronto, this advantage ranges upward from 88 cents per 100 pounds — roughly 5 p.c. of the value of the rolled zinc. In other lesser markets such as Montreal, Manitoba and the Maritimes, Burgess is at a freight disadvantage. In these areas, Burgess is usually unable to take advantage of carload-lot rates; also, at Montreal and in the Maritimes, oceanborne competition is keen and the demand often is not in volume lines. The net result is that Burgess ships in small lots, at relatively high rates. Even when it is possible to take advantage of pool-car rates, Burgess is faced with adverse freight differentials in most of these regions. At Halifax, where demand is very limited, this adverse differential is reported to range from 130 cents to 162 cents — or between 6.5 and 10 p.c. of the price of imported zinc. At Montreal, the differential between carload rates and ocean rates is about 30 cents or about 1.5 p.c. of the price of zinc; even when the comparison is based on l.c.l. rates, the differential as a percentage of price is well under 5 p.c. At Winnipeg, the differential against Burgess for carload lots is between 3 and 4 p.c. In fact, the quantity of business placed with Burgess is such that it apparently is not in a position to take advantage of carload rates, although its non-Canadian competitors do seem to utilize such rates. In practice, therefore, the real differential is close to 10 p.c. of the landed price of zinc in Winnipeg.

From the above, it would appear that, in the largest Canadian market for rolled zinc, Burgess has a freight advantage of close to 5 p.c. while in the remaining markets its average weighted disadvantage is about 5 p.c. There is probably something of a small overall net gain for Burgess by reason of freight charges.

Freight Charges on Rolled Zinc  
(cents per 100 pounds)

<u>FROM:</u>	<u>TO:</u>	<u>Halifax</u>	<u>Montreal</u>	<u>Toronto</u>	<u>Winnipeg</u>
Niagara Falls, Ont.		152 CL 236 LCL	115 CL 150 LCL	31 T 50 CL	206 CL 243 CL 381 LCL
Greencastle, Indiana					198
LaSalle and Peru, Ill.			157 CL 219 LCL	119 CL 122½ CL 168	178 CL
New York			142 LCL	108 CL 252 LCL	
Chicago			154 CL 212	120 CL 156	179 CL
Philadelphia			127 CL 156	119 CL 156	
United Kingdom		74	81		
	(July 1956)				
Europe		106	107		

T truck; LCL less than carload; CL carload.



## PRICES OF ROLLED ZINC

Burgess quotes a base price for each of the types of rolled zinc it produces. In addition, purchases may be subject to extra charges for gauging and slitting, quality, boxing, etc. The practice of charging extras is common throughout North America but, according to some importers, not so common in Europe. North American firms apparently also offer special prices on a contractual basis where large quantities are involved.

In general, base prices and extras quoted by Burgess appear to be competitive with those quoted by suppliers in the United States. In some instances, but not in all, contractual prices quoted by Burgess are slightly above those quoted by United States firms.

Prices of zinc from overseas competitors appear to be lower than the published base prices of North American suppliers, although European prices are roughly comparable with the North American contractual prices for volume lines. Burgess states, however, that for non-volume lines it cannot offer contractual prices, with the result that for such items of limited demand its prices appear to be somewhat higher than those offered by overseas suppliers.

For strip to be used in the manufacture of terrazzo strip, the prices quoted by Burgess are from 15 to 25 p.c. greater than those of overseas suppliers.

In short, the position of Burgess is that its official base prices and extras are much the same as those of suppliers in the United States; its contractual prices also roughly similar. Contractual prices apply, however, only to one or two volume lines. European zinc, which appears to cater to demand in limited-volume lines, including terrazzo strip, is landed at prices below those quoted by Burgess for this type of trade.

Base Prices - Burgess Battery Company  
(dollars per cwt. in April, 1957)  
carload lot = 23,000 pounds

Zinc for roofing	\$20.75 - \$21.70, depending on specification*
Zinc for weatherstripping	\$20.75 - \$21.15, depending on specification*
Boiler plate	\$21.75 (for certain sizes weight extras of from \$1.00 to \$2.00 per cwt. apply)

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\*Quantity extras for l.c.l. range from \$1.00 per cwt. for quantities of 18,000 to 23,000 lbs. to \$6.50 for 100 to 500 lbs.



Terrazzo strip                      \$22.75 (less than .1" in thickness x 1")  
    \$24.75 (other sizes)  
    No weight extras: if Burgess supplies  
    boxes there is a charge of \$2.00 per box.

Strip                                      \$21.75

Note: In addition to the base price, extras may apply for gauging, slitting, cutting, quantity, weight, packaging, etc. The above does not include contractual prices, which are entirely different.

Financial Position: Since the Burgess Battery Company is privately owned its financial statements are not made public. The Board has, however, requested and obtained a profit and loss statement for the calendar year 1956 pertaining to the company's zinc rolling operations. The information supplied by Burgess shows a gross profit before taxes of 6 p.c. on sales and a net profit of 3 p.c. after taxes. (These figures are approximate only, since rolling operations are integrated with the company's other production operations, with consequent difficulties in allocating certain common charges.)

#### SUMMARY RE ROLLED ZINC

1. The fact that rolled zinc has been in very limited demand, and that its uses appear to be declining, probably constitutes a major difficulty facing Burgess. An additional complication, which further reduces the size of its market, is the fact that certain of the larger importers are Burgess' competitors in the manufacture of batteries: these firms assert that they do not wish to purchase from Burgess, on the ground that to do so would prejudice their position in the battery field. Lastly, the limited market for rolled zinc demands a number of different types, only one or two of which can be considered volume lines in any accepted sense. The result is, apparently, that Burgess finds that it cannot produce the lines of limited demand at prices which can compete with those of overseas suppliers.

2. The following table gives an indication of the extent to which the market for rolled zinc has contracted (tons of 2,000 lbs.):

	<u>1948</u>	<u>1950</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Sales of domestic zinc	1,109	2,133	832	692	772
Imports	<u>2,932</u>	<u>1,730</u>	<u>1,256</u>	<u>1,841</u>	<u>1,615</u>
Total	4,041	3,863	2,088	2,533	2,387

3. This decline in the market for rolled zinc is reflected in reduced sales of the domestic product and of imports. Proportionally, however, domestic zinc had a greater part of the market in 1956 than in 1948 (32.34 p.c. compared with 27.44 p.c.). The spurt in domestic sales in 1950 reflects the shortage of non-Canadian zinc during the Korean crisis.

4. Of total imports, about 60 p.c. by volume competes with Canadian output; the remainder consists of types and sizes not made in Canada. The imposition of duties on the types and sizes not made in Canada would not assist Burgess, but would penalize importers.

5. It would appear that Burgess may often pay more for its primary zinc than do rollers in other countries. In the case of United States processors, the differential amounts to approximately .6 cent per pound, due to drawback of United States duties on imported spelter or concentrate.

6. Imports from overseas are highly competitive, European and United Kingdom price levels being well below North American list prices; they therefore set the prevailing levels in Canada, especially for non-volume lines. Burgess does not compete with these prices on non-volume lines and on only one volume line. Imports from the United States are very competitive in volume lines where contractual prices prevail. In addition to competition on a price basis, it is probable that some buyers turn to non-Canadian suppliers for a goodly portion of their requirements because they do not wish to be completely dependent on only one source.

7. On balance, freight charges are not a handicap to Burgess. In the largest Canadian marketing area, Burgess has, in fact, a substantial advantage through favourable freight rates. In those regions where Burgess is at a substantial freight disadvantage, the markets are small, with the possible exception of Manitoba.

8. In spite of its difficulties, Burgess apparently showed a profit on operations in 1956.



## ZINC IN OTHER FORMS

As is pointed out in the preceding sections, the bulk of zinc consumption in Canada is in other than rolled form. The Customs Tariff makes specific provision for zinc dust, sal ammoniac skimmings, seamless drawn tubing, spelter, blocks, pigs, granular zinc, dross, scrap, slugs for use in the manufacture of seamless cups or shells for electric dry batteries, anodes, and "manufactures of zinc, n.o.p.". These products are scattered among a number of existing tariff items (some of which provide also for the classification of rolled zinc products):

Existing Item 345: This item names three of these "other forms", viz.: zinc dust, sal ammoniac skimmings and seamless drawn tubing, all free of duty.

Zinc dust is produced in Hamilton by General Smelting Company of Canada, Ltd., a firm which is closely related to the Steel Company of Canada, Limited. The dust is recovered from zinc scrap which is either imported or obtained from Stelco's galvanizing operations, and is sold to the gold mining industry. In 1956, imports amounted to 491 tons, valued at \$154,031. There are no exports.

Sal ammoniac skimmings are the flux skimmings resulting from the use of sal ammoniac as a fluxing agent in zinc-melting furnaces. The skimmings contain a small zinc content; it is understood, however, that it is not economic, as a rule, to attempt to recover the zinc content.

Seamless drawn zinc tubing is not, to the knowledge of the Board, produced in Canada. A number of producers of collapsible tubing were consulted, and they stated that they did not use zinc in the manufacture of tubing nor were they aware of it being used for this purpose. No representations have been received regarding this product. No imports are recorded.

Existing Item 345a: This item names zinc spelter, zinc in blocks, pigs and granular form (as well as certain rolled forms). It provides for duties of:

per pound	3/4 ct.	1 ct.	1 ct.
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Zinc spelter, blocks, pigs and granules are the various primary forms of refined zinc. In most years there are no imports. The two Canadian smelters ship most of their zinc for export in these forms. With respect to tariff item 345a, the two Canadian zinc refiners have not requested any change in rates (see earlier section of this Report).



Existing Item 345b: This is a temporary item inserted into the Customs Tariff at the request of the General Smelting Company (referred to under item 345). The raw materials used by this company in producing zinc dust are zinc dross and scrap, which are named in this tariff item. This item permits the importation of these materials, which apparently are not available in Canada in sufficient quantity, on a duty-free basis. Previous to the establishment of this item zinc dross and scrap were dutiable at 20 p.c. under item 711. This had created a hardship for General Smelting in that its end product, zinc dust, may be imported duty-free.

Existing Item 346: This item provides for the classification of non-specified manufactures of zinc. While it is difficult to define with any degree of precision what constitutes a manufacture of zinc for the purposes of this item, it is possible to do so in general terms: a manufacture of zinc is an item which is further processed than the primary or semi-fabricated forms named in the zinc schedule but is not specifically named or otherwise provided for in some other item in the Tariff. As a consequence such widely differing products as punched plate and fruit-jar caps are dutiable hereunder.

One of the more important products classified under this item is die castings not provided for eo nomine. Many die castings of zinc for use in automobiles are provided for in the automobile parts schedule and thus are not classified under item 346. Nevertheless, it is understood that a considerable volume of imported die castings for miscellaneous purposes falls under item 346, imports under which in 1956 were valued at \$2,464,058, mostly from the United States.

Existing Item 358: This item provides for the classification of "anodes of nickel, zinc, copper, silver or gold". The rates of duty are 5 p.c., 7½ p.c., 10 p.c. Only the zinc anodes fall within the terms of this reference. Zinc anodes are made in Canada by at least one of the two refiners and also by at least two firms engaged in metal plating. The anodes are used in coating other metals with zinc by electrolytic means. No representations have been received requesting changes in this item.



### PART III

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#### RECOMMENDATIONS BY THE TARIFF BOARD

#### REFERENCE NO. 122: ZINC & PRODUCTS

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Having held a public inquiry and having considered the evidence and information presented,

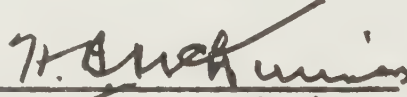
The Tariff Board has the honour to submit the following recommendations respecting the tariff treatment of those forms of Zinc referred to in the Letter of Reference from the Minister of Finance:

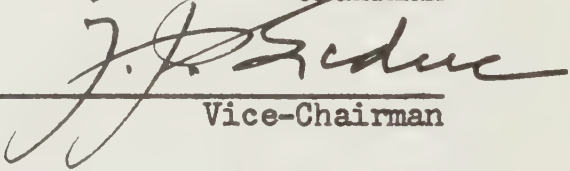
1. That Schedule A to the Customs Tariff, being Chapter 60, Revised Statutes of Canada, 1952, be amended by deleting therefrom the following tariff items, descriptions and rates of duty appertaining thereto: 345, 345a, 345b, 346, 346a and 346c, and by inserting the following items, descriptions and rates of duty in the said Schedule A:

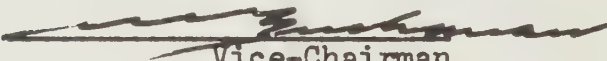



Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
1. Zinc dross and zinc scrap for re- melting, or for processing into zinc dust .....	Free	Free	10 p.c.
2. Zinc spelter, zinc, and zinc alloys containing not more than 10 p.c. by weight of other metal or metals, in the form of pigs, slabs, blocks, dust or granules .....per pound	$\frac{3}{4}$ ct.	1 ct.	2 cts.
3. Zinc, or zinc alloys containing not more than 10 p.c. by weight of other metal or metals, in the form of foil, ribbon, strip, sheet, plate, discs or slugs; coated or not .....	5 p.c.	7 $\frac{1}{2}$ p.c.	20 p.c.
4. Zinc rods; zinc shapes other than flat-rolled; zinc strip or sheet, ungrained, whether or not ground, for making offset plates for litho- graphing; zinc strip or sheet, not planished, ground or polished, coated on one side with acid- resisting material, to be prepared for use in photo-engraving: all the foregoing if containing not more than 10 p.c. by weight of other metal or metals .....	Free	Free	10 p.c.
5. Zinc, manufactures of, n.o.p. ....	15 p.c.	17 $\frac{1}{2}$ p.c.	25 p.c.

Note: Re Item 358, cited in the Letter of Reference: The Board makes no recommendations as to changes in number, wording or rates of duty.

  
Chairman

  
Vice-Chairman

  
Vice-Chairman

  
Member

# COMPARISON OF EXISTING AND RECOMMENDED ITEMS

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<u>1. Recommended Items</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>	<u>2. Existing Situation</u>	<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
1. Zinc dross and zinc scrap for remelting, or for processing into zinc dust ...	Free	Free	10 p.c.	<u>345b</u> Zinc dross and scrap for use in the recovery of the zinc content	Free	Free	25 p.c.
2. Zinc spelter, zinc, and zinc alloys containing not more than 10 p.c. by weight of other metal or metals, in the form of pigs, slabs, blocks, dust or granules ....per pound	$\frac{3}{4}$ ct.	1 ct.	2 cts.	<u>345</u> Dust <u>345a</u> Zinc spelter and zinc in blocks, pigs, or granular form ...per pound	Free	Free	Free $\frac{3}{4}$ ct. 1 ct. 1 ct.

### 1. Recommended Items

3. Zinc, or zinc alloys containing not more than 10 p.c. by weight of other metal or metals, in the form of foil, ribbon, strip, sheet, plate, discs or slugs; coated or not..

5 p.c.  $7\frac{1}{2}$  p.c. 20 p.c.

## 2. Existing Situation

345 Zinc strip and sheet;  
zinc plates for marine  
boilers

345a Zinc plates, n.o.p.  
per pound

346 Coated zinc in forms  
named

346a Slugs for battery  
cells

711 Alloyed zinc in forms  
named

B.P.

M.F.N.

Gen.B.P.

M.F.N.

Gen.

Free Free Free

$\frac{3}{4}$  ct. 1 ct. 1 ct.

15 p.c.     $17\frac{1}{2}$  p.c.    25 p.c.

Free Free 25 p.c.

15 p.c. 20 p.c. 25 p.c.



1. Recommended Items				2. Existing Situation			
B.P.	M.F.N.	Gen.		B.P.	M.F.N.	Gen.	
4. Zinc rods; zinc shapes other than flat-rolled; zinc strip or sheet, ungrained, whether or not ground, for making offset plates for lithographing; zinc strip or sheet, not planished, ground or polished, coated on one side with acid-resisting material, to be prepared for use in photo-engraving: all the foregoing if containing not more than 10 p.c. by weight of other metal or metals .....	Free	Free	10 p.c.				
5. Zinc, manufactures of, n.o.p. ....	15 p.c.	17½ p.c.	25 p.c.				



PART IV

—

EXPLANATORY NOTES

REGARDING THE TARIFF ITEMS ON  
ZINC AND CERTAIN ZINC PRODUCTS  
RECOMMENDED BY THE TARIFF BOARD  
IN RESPECT OF REFERENCE NO. 122

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# NOTES RE RECOMMENDED ITEMS

1. Zinc dross and zinc scrap for remelting, or for processing into zinc dust .....

Free Free 10 p.c.

Statistics: For details see page 9. Although the Board is informed by the trade that there have been imports, there is available no statistical breakdown which shows these products separately.

Comments: Prior to 1956 zinc dross and scrap were dutiable at 20 p.c. The duty was suspended at the request of the General Smelting Company of Hamilton. This firm manufactures zinc dust (which had been duty-free) and wished to obtain its raw materials, scrap and dross, on a similar basis. The company purchases all the scrap and dross it can obtain in Canada, but at times such supplies are insufficient for its needs and it must therefore import. Its request for the continuation of duty-free entry of dross and scrap was not opposed.

2. Zinc spelter, zinc, and zinc alloys containing not more than 10 p.c. by weight of other metal or metals, in the form of pigs, slabs, blocks, dust or granules .....

per pound  $\frac{3}{4}$  ct. 1 ct. 2 cts.

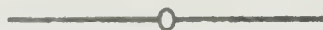
Statistics: See page 6 for dust, and page 8 for spelter and zinc.

Comments: This proposed item deals almost exclusively with zinc in its primary forms. Its scope differs from that of existing item 345a in that it provides for alloys of zinc in primary form, also for zinc dust. At the public hearing, a number of interested parties pointed out that, whereas an alloy containing 1 p.c. of some other additive metal became dutiable at 20 p.c., flat-rolled zinc containing 2 or 3 p.c. of impurities was duty-free. This arose from the fact that since there has been no provision for the classification of alloys in the zinc schedule, such products have been placed under the general "basket item" in the tariff, i.e., item 711. In order to rectify this situation, both products have been provided for under the same item, the permissible non-zinc content being set at 10 p.c. by weight.

Respecting the zinc dust, the General Smelting Company requested that this product be reclassified. During the

discussion at the public hearing, it was the opinion of experts from industry that dust could not be distinguished from zinc in granules. The Customs Appraiser representing the Department of National Revenue confirmed this. Chiefly to avoid an administrative problem, dust and granules are classified together. The result is the imposition of a duty on zinc dust.

The B.P. and M.F.N. rates applying to the proposed item are the same as those applicable to existing item 345a. The primary producers of zinc, who are mainly concerned with this item, made strong representations that the rates be left unchanged.



3. Zinc, or zinc alloys containing not more than 10 p.c. by weight of other metal or metals, in the form of foil, ribbon, strip, sheet, plate, discs or slugs; coated or not .....

5 p.c.	$7\frac{1}{2}$ p.c.	20 p.c.
--------	---------------------	---------

Statistics: See pages 7 and 8.

Comments: This item incorporates the most important recommendations arising out of the present inquiry: it provides for duties, under all tariffs, on the forms of zinc (chiefly rolled zinc) named therein. In other words, it rectifies the anomaly hitherto existing in the tariff and complained of by the sole Canadian roller, viz.: that, while zinc in primary forms was dutiable, the product rolled therefrom entered Canada duty-free. The rates proposed under the B.P. and M.F.N. tariffs are moderate; they are rather closely in line with the rates at present applicable to other rolled metals; and, for the first time, they provide for duties on slugs or discs used in the manufacture of dry-cells for batteries. The Board, having decided to recommend duties on rolled sheet or strip, felt that it could not, without discriminating among the battery producers, leave discs or slugs on the free list. Its view is that the duties suggested are not such as to prejudice the position of the dry-cell battery manufacturers, whose products are for the most part dutiable at  $22\frac{1}{2}$  p.c. M.F.N. and the imports of which are insignificant. Further, the item gives the dry-cell manufacturers a substantial reduction on their imports of coated sheet and strip, not produced in Canada, thus offsetting materially the increase on the slugs or discs.

It should be stated that the proposed item will cover all sheets and strip, despite that so-called "wide sheets" are not rolled in Canada. If such wide sheets were to be



granted lower duties, they could — after importation — be slit into widths identical with the Canadian product, the maximum width of which is 24 inches.

The moderate rate proposed under the M.F.N. tariff should assist the domestic roller to compete in those areas of Canada where he labours under a freight disadvantage.

The item makes provision for the coverage of alloyed forms, as has been done in the immediately preceding item.

---

4. Zinc rods; zinc shapes other than flat-rolled; zinc strip or sheet, ungrained, whether or not ground, for making offset plates for lithographing; zinc strip or sheet, not planished, ground or polished, coated on one side with acid-resisting material, to be prepared for use in photo-engraving: all the foregoing if containing not more than 10 p.c. by weight of other metal or metals .....	Free	Free	10 p.c.
---	------	------	---------

Statistics: See Part II, Imports.

Comments: This is a new item, incorporating parts of provisions contained in existing items 345, 345a, 346, 346c and 711. Its purpose is to bring together several important types of rolled zinc which are not produced in Canada. A draft of such an item was presented to those present at the public hearing and was approved in principle by all interested parties.

A number of firms — including the Burgess Battery Company, The B. Greening Wire Co. Ltd. and Canada Wire & Cable Company, Limited — proposed that rods be given preferred treatment, as being not made in Canada. The latter two firms are producers of wire which is drawn from rods. Zinc shapes are used in the manufacture of terrazzo strip. This proposed item also provides for the free entry of sheet for lithographing or photo-engraving, to be further processed in Canada; this sheet is not competitive with Canadian-rolled sheet, if for no other reason than that its price is two to three times that of rolled zinc as produced in Canada. The finish is also much different. The provision re alloys mentioned earlier is repeated in this item.

5. Zinc, manufactures of, n.o.p. ....

15 p.c.      17½ p.c.      25 p.c.

No change suggested in wording or rates of duty.



Note: Three products named in existing tariff items are not named in the proposed items, the reason being that, although they were drawn to the attention of those at the public hearing, there was no apparent interest in them. These are sal ammoniac skimmings, seamless tubing of zinc, and plates for marine boilers. With the exception of the latter product, there is apparently no trade in these products. Imports of plate for marine boilers amounted to only a few tons in 1956.





EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1957.



*Commissioner of Customs*  
**Report by**

**THE TARIFF BOARD**

*Report No. 123*  
**Relative to the Inquiry Ordered  
by the Minister of Finance  
respecting**

**RADIO, TELEVISION AND  
RELATED PRODUCTS**

*1957*  
**Reference No. 123**







Report by

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Relative to the Inquiry Ordered  
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***Reference No. 123***

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Ottawa, Canada

1965

## THE TARIFF BOARD

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### PANEL FOR THIS INQUIRY

G.H. Glass, presiding  
E.C. Gerry  
W.D.R. Eldon\*

---

Economist: L.F. Drahotsky

---

\*Dr. Eldon resigned from the Tariff Board on February 1, 1963.





The Honourable Walter L. Gordon  
Minister of Finance  
Ottawa

Dear Mr. Gordon:

I refer to Mr. Harris' letter of February 13, 1957 and to Mr. Fleming's letters of March 24, 1959 and January 31, 1962, in which they requested the Tariff Board to conduct an inquiry respecting the products of the radio, television and electronics industry.

In conformity with Section 6 of the Tariff Board Act, I have the honour to transmit the Report of the Board relating to radio, television and related products, in English and in French. A copy of the transcript of the proceedings at the public hearings accompanies this Report.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "J.C. Audette". The signature is fluid and stylized, with a large, sweeping flourish at the end.

Chairman





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Explanation of Symbols Used

- Denotes zero or "none reported"
- .. Indicates that figures are not available
- \* In statistical tables, indicates a reported figure which disappears on rounding
- (a) A small letter in brackets denotes a footnote to a table
- (1) A number in brackets denotes a footnote to the text
- s.c. Denotes an import or export statistical class





## THE TARIFF BOARD

---

Reference No. 123An Inquiry Respecting Radio, Television and  
Related Products

---

The first letter from the Minister of Finance, dated February 13, 1957, directing the Tariff Board to conduct an inquiry respecting radio, television and related products reads as follows:

"I have received representations from the radio, television and electronics industry to the effect that provisions of the Customs Tariff relating to the products of that industry have become out of date. The industry has requested that these provisions be revised to take account of developments which have taken place since Tariff Items 445o and 445p were established following the report of the Tariff Board in 1939 on the radio industry.

"I, therefore, direct the Board to make a study and report, under Section 4(2) of the Tariff Board Act on the following items in Schedule A of the Customs Tariff:

445d	445p
445o(i)	445q
445o(ii)	445s.
445o(iii)	

"It is my intention that the Board include in its study also Tariff Item 440r in so far as it relates to radios for navigation and air traffic communication, Item 597a(2) in so far as it relates to electrically-operated record players and record changers, and such other items as the Board may consider relevant to an adequate enquiry.

"If the Board's studies should indicate that amendments to the Customs Tariff are desirable, I would request the Board to prepare a revised schedule of tariff items, with recommendations as to rates of duty, and to include the proposed schedule in its report.

"In preparing the proposed schedule, I would expect that the Board would have regard in a general way to the rates of duty applicable to other related or comparable products and that the Board would also keep in mind the obligations and procedures of the General Agreement on Tariffs and Trade."

The second letter from the Minister of Finance, dated March 24, 1959, requested the Tariff Board to deal with automatic record changers at the earliest opportunity and to report on them separately. The Board's Report respecting Automatic Record Changers was dated October 20, 1959 (Cat. No. FT4-123/1).

The third letter from the Minister of Finance, dated January 31, 1962, instructing the Tariff Board to include in its study certain other tariff items reads as follows:

"I understand that the Board has announced the date of the public hearing on Reference No. 123 relating to certain tariff items which affect the products of the radio, television and electronics industry.

"Since this series of tariff items was referred to the Board, three new tariff items — 445t, 445u and 445v — covering materials and parts used by this industry, have been established under the authority of Section 273 of the Customs Act. It is my intention that in its study of Reference No. 123 the Board take account of these new items."

Public hearings respecting the products under review were held in Ottawa from May 7 to May 9, 1962 and from October 1 to October 4, 1962. In the course of these hearings, the Board received representations from the following companies and associations:

Air Industries & Transport Association of Canada, Ottawa, Ont.  
 Allen-Bradley Canada Limited, Galt, Ont.  
 Aluminum Company of Canada, Limited, Montreal, P.Q.  
 Audio Transformer Company Limited, Waterloo, Ont.  
 British Canadian Trade Association, The, Toronto, Ont.  
 British Radio Equipment Manufacturers' Association, The, London, England  
 British Radio Valve Manufacturers' Association, London, England  
 Canadian Astatic Limited, Toronto, Ont.  
 Canadian Electrical Manufacturers Association, Toronto, Ont.  
 Canadian Importers & Traders Association Inc., Toronto, Ont.  
 Canadian Marconi Company, Montreal, P.Q.  
 Capacitors of Canada Limited, Scarborough, Ont.  
 Collins Radio Company of Canada, Ltd., Toronto, Ont.  
 Corning Glass Works of Canada Ltd., Toronto, Ont.  
 Dominion Electrohome Industries Limited, Kitchener, Ont.  
 Electronic Engineering Association, The, London, England  
 Electronic Industries Association of Canada (E.I.A.), Toronto, Ont.  
 Electronic Industries Association of Japan, Tokyo, Japan  
 Electronic Valve & Semi-Conductor Manufacturers' Association, London, England  
 El-Met-Parts Ltd., Dundas, Ont.  
 Fleetwood Corporation, Montreal, P.Q.  
 General Distributors Ltd., Winnipeg, Man.  
 Hammond Manufacturing Company Limited, Guelph, Ont.  
 Indiana Steel Products Company of Canada Limited, The, Kitchener, Ont.  
 Industry Committee for Tariff Reference 120 - Chemicals, The, Ottawa, Ont.  
 Japan Machinery Exporters Association, Tokyo, Japan  
 Mel Sales Limited, Scarborough, Ont.  
 Nordmende (Quebec) Ltd., Montreal, P.Q.



Paisley Products of Canada Limited, Scarborough, Ont.  
 -Philips Electronics Industries Ltd., Toronto, Ont.  
 Plessey Company of Canada Limited, The, Montreal, P.Q.  
 Primary Textiles Institute, Montreal, P.Q.  
 Radio & Electronic Component Manufacturers Federation, London, England  
 -RCA Victor Company, Ltd., Montreal, P.Q.  
 Standard Television Products Ltd., Kitchener, Ont.  
 Syntron (Canada) Limited, Stoney Creek, Ont.  
 Telecommunication Engineering and Manufacturing Association, London,  
 England  
 Union Carbide Canada Limited, Toronto, Ont.



SECTION IGENERAL BACKGROUNDIntroduction

This Report deals with radio, television and other wireless equipment, as well as with certain related products, including record players, phonographs and tape recorders. Also considered are certain instruments especially designed for testing the equipment under review, including oscilloscopes, signal generating equipment, and frequency counters and meters. Finally, this Report deals with the components used in the manufacture of the equipment under consideration, such as electron tubes, semiconductor devices, transformers, loudspeakers, capacitors and resistors, and with some of the parts and materials used in the manufacture of the components themselves. At present, most of the equipment and components are entered under tariff item 445d, free of duty under the British Preferential Tariff and at a rate of 20 p.c. under the Most-Favoured-Nation Tariff, while many of the materials qualify for duty-free entry under tariff items 445o, 445p, 445q, 445s, 445t, 445u and 445v. Full wording and histories of these tariff items are given in Appendix A.

The products under review vary greatly in the degree of technical sophistication and in the purposes they serve. They range from the relatively simple household entertainment equipment, such as radios, television sets, phonographs and their combinations, to the highly sophisticated telemetry instrumentation for ballistic missiles and earth satellites. Between these two extremes is a wide range of equipment of varying complexity, including radio and television broadcasting equipment, closed circuit television, and a variety of radio communication, navigation and detection apparatus for civilian and military uses.

The products under consideration in this Report are frequently referred to as electronic equipment, telecommunication equipment or communication equipment. However many of the products normally included under these more general descriptions are not under review in this Reference. For example, electronic computers, whether digital or analogue, various types of simulators, such as flight or tactical simulators used by the armed forces, and various electro-mechanical navigation devices, all of which are usually considered to fall under the general heading of electronic equipment, are not under review in this Report. Similarly, the telephone and telegraph apparatus covered by tariff item 445c is not before the Board, although it would normally be included in the broad category of telecommunication, or communication, equipment. On the other hand, some



of the major components, such as electron tubes, semiconductor devices, capacitors or resistors, used in the foregoing equipment are considered in this Report; to that extent, the Board's recommendations may affect the manufacture of these other electronic or communication products as well.

Canadian shipments of the complete equipment under consideration have been valued in recent years at about \$140 million annually, while imports have been in the order of \$30 million. Canadian shipments of components have been valued at about \$60 million with another \$60 million supplied by imports, suggesting that the latter account for about one-half of the commercial market. However, some equipment manufacturers also produce components for their own use which do not enter commercial channels. In terms of total requirements for components, therefore, imports constitute a smaller proportion than is indicated by the figures quoted above.

The Canadian markets for the equipment, components and materials under review in this Report are described in detail in Sections II and III, together with the proposals and the arguments advanced by interested parties. The remainder of this section is devoted to descriptions of the Canadian radio manufacturing industry, of the competitive setting under which it operates, and of the principal manufacturing processes.

### The Industry

#### Historical Perspective

In the early 1920's two Canadian manufacturers of electrical power line equipment began the production of vacuum tubes, and shortly thereafter began to manufacture radio receiving sets for home use. However, it was not until 1925 that Canadian production of radio receiving sets was recorded in official statistics, with some 49,000 sets valued at \$2.3 million reported in that year. The first official record of Canadian production of vacuum tubes shows for the year 1929 a total value of \$3.3 million; of this, \$3.1 million, representing some 2.9 million pieces, consisted of radio receiving tubes. The close association of radio manufacture with the production of other electrical equipment has continued to the present day. Several of the large manufacturers of electrical appliances and other electrical apparatus account for a substantial portion of the Canadian production of radios, television sets and other wireless equipment.

From the modest beginnings of the early 1920's Canadian production of radio receiving sets expanded rapidly reaching in 1930 what was to remain the pre-World War II peak of just over \$19 million. It was in this year that "Electric wireless or radio apparatus and complete parts thereof" were for the first time mentioned

in the Customs Tariff; prior to this, radio receiving sets were classified as electric apparatus under a tariff item which also provided for all machinery composed wholly or in part of iron or steel. A year later, in 1931, a separate provision was also made in the Customs Tariff for phonographs, gramophones and their finished parts which, until then, were included in an item providing also for "Pianofortes, organs and musical instruments of all kinds ..." Most of the complete equipment under review is currently entered under these two items, 445d and 597a(2) respectively.

The economic depression of the early 1930's left its imprint on Canada's fledgling radio industry. Sales drastically declined, dropping from over \$19 million in 1930 to about \$4.4 million in 1933. Similar declines occurred in the manufacture of vacuum tubes and other components, with reduced levels of activity persisting for several years. Early in 1938, the Minister of Finance instructed the Tariff Board to conduct an inquiry into the operation of Canada's radio industry. This inquiry, Reference 104, led to the establishment of two tariff items, one providing for duty-free entry of certain parts and materials used in the manufacture of radios and phonographs (item 445o) and the other for duty-free entry of certain materials used in the manufacture of radio tubes (item 445p); these items, substantially unchanged, are also before the Board in the present Reference.

World War II marked the appearance of radio and related devices as formidable instruments of war. A wide variety of such devices was developed and put to use by the armed forces of the combatant nations, including various types of radio detection and ranging devices, more popularly known as radar, automatic fire control and bombing devices, as well as many types of ground, airborne and naval radio communication and navigation equipment. By the end of the war, the total value of radar equipment built in Canada for the allied war effort approached \$150 million, while the value of radio communication equipment for war purposes reached \$100 million in 1944 alone. As a result, the radio apparatus industry quickly reached the status of an important defence industry, a status which it has maintained ever since.

With the end of hostilities came problems of adjustment to civilian production. The pent-up demand for consumer goods, such as radios and phonographs, lead to a rapid expansion in their output; by 1947, production of radios reached a record of just under one million sets, which has not been surpassed or even approached since, while that of electrically operated record players exceeded 90,000 units. Just as the demand for radios and phonographs was beginning to show signs of a decline, a completely new market was being created by television. At first, Canadian production, which began with four sets in 1948, grew relatively slowly, and was still less than 50,000 sets in 1951. However, following the opening of television transmitters in Toronto and Montreal, in September, 1952, output of television receiving sets expanded rapidly to reach an all-time high of 806,000 sets in 1955. Since then, shipments have declined to about 400,000 sets annually. The decline in sales of television sets has been partly off-set by the increasing popularity of high-fidelity and stereophonic high-fidelity equipment.



The outbreak of the Korean conflict, in the summer of 1950, resulted in the re-appearance of sizeable defence orders, which had all but disappeared during the immediate post-war years. Canadian Government defence orders for electronic and communication equipment grew rapidly, from about \$17 million in the year ending March 31, 1950 to almost \$87 million a year later; they have not been below \$70 million since. By far the greatest portion of this equipment is made in Canada and much of it consists of products under review in this Reference.

In the latter half of the 1950's there developed two new areas of demand for the products of the radio apparatus industry, one in the field of telecommunication and the other in air navigation and air traffic control. The first involved the construction of two transcontinental microwave radio relay networks and the extension of long distance communication services to Canada's northland by means of tropospheric scatter systems. The second new area of demand for the products of the radio apparatus industry has been provided by the Department of Transport, which has been engaged in the construction of a nation-wide network of radar systems for traffic control on commercial air routes, and in improving and expanding its system of radio aids to air navigation. The programme has stimulated the development and production in Canada of complex radar systems, such as the airport and airways surveillance radars used for en-route and approach or departure control at major Canadian airports. The value of radar and radio communication equipment purchased by the Department of Transport has been in excess of one million dollars annually, in recent years.

The requirements of missile and space technology have opened up new vistas in the field of radio communication. The telemetry, control and communication systems used in connection with guided missiles and space satellites are but another refinement of the art of carrying signals over long distances by means of radio waves. Although Canada is not a major space age power, considerable work in the field of space communication has been done in recent years, including the design and construction of telemetry transmitters for the Canadian-built Alouette satellite and the U.S.-built Relay I communication satellite. Currently, work is in progress on telemetry instrumentation for future Canadian earth satellites, including Alouette II and the Isis series.

The large increase which has occurred since the war in the quantity and the variety of radio and related equipment manufactured in Canada has stimulated domestic production of many of the components used in the manufacture of such equipment. There are now in Canada more than 70 firms engaged to a significant extent in the manufacture of radio and television components, compared to less than 20 just before the war. The principal components that are being manufactured in Canada are: electron tubes, including television picture tubes, transistors and other semiconductor devices, transformers, loudspeakers, capacitors and resistors. With the exception of tubes, most of the components are produced by firms which do not manufacture complete equipment but rather specialize in the production of components only. Radio and television receiving tubes are produced



exclusively by firms which manufacture radio, television and other related equipment; these firms manufacture tubes for their own use, as well as for sale to other equipment manufacturers and for replacement purposes. Certain of the equipment manufacturers also produce for their own use some of the other components.

In summary, the principal developments in the radio industry over the past 25 years have been as follows:

1. The tremendous technological advances in the field of electronics have resulted in a great diversification in the output of the industry. Much of the equipment now being produced did not exist prior to World War II.
2. A significant portion of the industry's sales now are to defence and other government procurement agencies.
3. The manufacture of components for use by the radio industry has increased considerably both in volume and variety.

#### Present Dimensions and Structure

The growth of the radio apparatus industry in recent years has been at a rate far exceeding that of any other major Canadian manufacturing industry. Since the war, shipments by plants engaged principally in the manufacture of radio apparatus and related products increased at an average annual rate of about 14 per cent, compared with an annual average rate of about 6 per cent for all Canadian manufacturing industries taken together. Despite this considerable growth, in 1960, the latest year for which all-industry statistics are available, the value added by manufacture<sup>(1)</sup> in the radio apparatus industry was only about \$108 million, or just over one per cent of the value added by all Canadian manufacturing industries, and the 17,300 persons employed in the manufacture of radio apparatus represented about 1.3 per cent of total manufacturing employment.

In 1961, there were in Canada 131 plants engaged chiefly in the manufacture of radio apparatus and related products. These plants accounted for most of the Canadian shipments of the equipment and components under review; in addition, some of them produce small quantities of other products. The following table shows the distribution of plants in the radio apparatus industry among the three principal categories - entertainment equipment, other equipment and components - and presents some of the principal statistics for each category for the year 1961. More detailed statistics for 1961 and for the preceding years are given in Appendix B, Table 2.

---

(1) Value added by manufacture is obtained by subtracting the cost of materials, including fuel and electricity, from the selling value of output. It represents the net production of the manufacturing plant and is the amount that is available for such payments as salaries and wages, overhead and profit.

SELECTED STATISTICS OF PLANTS IN THE RADIO APPARATUS INDUSTRY,  
BY PRINCIPAL PRODUCT CATEGORIES, 1961

<u>Product Category</u>	<u>Establish- ments</u>	<u>Employees</u>	<u>Salaries and Wages</u>	<u>Value of Factory Shipments</u>		
	No.			<u>Civilian</u>	<u>Defence</u>	<u>Total</u>
		No.	\$'000	\$'000	\$'000	\$'000
Equipment:						
Entertainment	23	6,264	27,148	110,104	8,450	118,554
Other	33	6,617	32,353	30,990	47,652	78,642
Total	56	12,881	59,501	141,094	56,102	197,196
Components	75	5,861	19,901	..	..	54,614
INDUSTRY TOTAL	131	18,742	79,402	..	..	251,810

Source: Compiled by the Tariff Board from data collected by DBS. For further details see Appendix B, Table 2.

Ten large firms account for 80 per cent of Canadian shipments of complete equipment. Four of these, namely Canadian General Electric Company Limited, Canadian Westinghouse Company Limited, Philips Electronics Industries Ltd. and RCA Victor Company Ltd., also account for most of the electron tubes manufactured in Canada. Thus, while there are many firms engaged in the manufacture of the products under review, a large portion of the output of complete equipment and of the tubes is supplied by relatively few large firms.

Most of the large firms also have plants manufacturing other electrical products such as household appliances or industrial equipment and controls. In addition, because many of them are affiliated with companies abroad, they act as distributors of equipment and components manufactured by their foreign affiliates. As a result, the large foreign-owned companies account for a substantial portion of imported components, as well as for some of the imports of complete equipment. Although some of the components which they import consist of types not available from domestic production, others compete directly with those made in Canada.

With the exception of tubes, the other components which are made in Canada are manufactured chiefly by the more than 70 firms engaged principally in the production of components. Most of these companies are relatively small, each tending to specialize in the manufacture of a number of components; they do not generally manufacture complete equipment. To this extent, the radio apparatus industry is not unlike the automobile industry, with a few large, foreign-owned companies engaged in the assembly of components, some of which they manufacture, some they procure in Canada from independent component manufacturers and some they import.

The extent of the dependence of the radio apparatus industry on defence shipments is worth noting. Although it tends to fluctuate considerably from year to year, in the period 1955 to 1961 the proportion of defence shipments to total shipments of the plants engaged chiefly in the production of complete equipment ranged between 13 and 28 per cent. The significance of these large defence orders for the radio apparatus industry is considered under the heading "Competitive Setting" later in this section.



In 1961, of the 131 plants comprising the radio apparatus industry, 94 were located in Ontario, 26 in Quebec, 8 in British Columbia and one each in Nova Scotia, Saskatchewan and Alberta. Of the plants in Ontario, almost two-thirds were in the Toronto, Hamilton and Kitchener-Waterloo area. Nearly all of the Quebec firms were in Montreal or its suburbs. The firms in the other provinces were also located in the larger cities.

The tendency of the firms to locate in the large centers of population and industry can be explained partly by the early development of manufacture as an offshoot of the electrical apparatus and supplies industry. Most of the large electrical manufacturing firms have traditionally located in the big cities, in close proximity to the markets and to the sources of skilled labour. The newer firms which manufacture chiefly components for the rapidly growing industry have, in turn, tended to locate close to their customers, the equipment manufacturers.

A number of other factors concerning the radio apparatus industry are worth noting. These include: the relative importance of labour and of capital as costs of production, the output per employee, the composition of the industry's labour force and the rates of pay. All of these factors are here considered against the background of other sectors of Canadian manufacturing. The statistics on which these comparisons are based are contained in Appendix B, Table 3; most of these relate to the year 1959, or earlier, as comparative statistics for more recent years are not available owing to the adoption in 1960 of a revised industrial classification.

Value added by manufacture, or net value of output, in the radio apparatus industry accounts, on the average, for about 52 per cent of the value of factory shipments; this is somewhat higher than in Canadian manufacturing industries generally (44 per cent). Labour is a very significant element of cost in the radio apparatus industry, with salaries and wages accounting for about 66 per cent of value added, compared with an average of 49 per cent for all manufacturing industries taken together. In this respect, the radio apparatus industry tends to be more like the clothing industry (61 per cent) or the furniture industry (63 per cent) than the related electrical apparatus industry (53 per cent). Moreover, capital appears to be a smaller element of cost in the radio apparatus industry than in most other industries. For example, capital expenditures by the industry on new construction, machinery and equipment during the ten years 1950-59 combined came to about \$2,200 per employee, compared with \$5,400 in other electrical apparatus, \$8,600 in motor vehicles and \$7,800 in Canadian manufacturing industries generally. Altogether then, the radio apparatus industry is characterized by relatively high labour costs and low capital costs. To a large extent this is attributable to two characteristics of the industry. The manufacture of radio apparatus and related products is essentially an assembly operation utilizing considerable direct labour and relatively little capital equipment; also, it utilizes a large proportion of highly qualified professional men.



Reflecting the relatively low ratio of capital investment, the net output, or value added, per employee in the radio apparatus industry is below the average for manufacturing. In 1959, for example, the value added by manufacture in the radio apparatus industry came to about \$6,200 per employee, compared to the average of \$7,900 in Canadian manufacturing industries generally.

The ratio of administrative and office employees to production employees is much higher in the radio apparatus industry than in other manufacturing industries. The relatively high ratio of salaried employees is due to the large number of engineering and other professional personnel in research, development and testing. The other noteworthy aspect of the employment pattern in the radio apparatus industry is that the percentage of females employed is greater than in most other manufacturing industries. This is, no doubt, due to the fact that female employees are particularly suited for many of the operations such as the assembly of radio and television circuits, or of electron tubes.

The employment of large numbers of salaried personnel, many of whom are highly qualified professional men, and of a relatively high proportion of women in production is directly reflected in the average annual earnings of the two categories of employees, as well as in the average for the industry as a whole. The relevant figures for 1959 are summarized in the following table:

AVERAGE ANNUAL AND HOURLY EARNINGS, 1959

<u>Industry</u>	<u>Average Annual Earnings</u>			<u>Average Hourly Earnings of Production Employees</u>		
	<u>Salaried</u>	<u>Production</u>	<u>TOTAL</u>	<u>Male</u>	<u>Female</u>	<u>TOTAL</u>
	<u>Employees</u>	<u>Employees</u>				
	\$	\$	\$	\$	\$	\$
RADIO APPARATUS	5,540	3,268	4,117	1.84	1.30	1.60
All Manufacturing	4,998	3,551	3,890	1.88	1.11	1.72

Source: DBS Cat. No. 31-201 and 72-204. Comparative figures for other industries are given in Appendix B, Table 3.

While in 1959 the average annual earnings of salaried employees were above the all-industry average, the earnings of production employees were somewhat below. The latter differential is attributable to the fact that more than one-half of the production employees were women; although the average hourly rates for men and women compared favourably with the average rates paid in manufacturing generally, the relatively large number of women tended to bring the combined average for men and women below the national average of \$1.72. Thus, although offering rates of pay substantially higher than those found, for example, in the clothing or the furniture industries, the radio apparatus industry is not faced with rates of pay significantly different from those prevailing in Canadian manufacturing industries generally.

### Financial Considerations

The Board has obtained from the Electronic Industries Association of Canada (E.I.A.), which counts among its membership most of the Canadian firms engaged in the production of the equipment and components under review, financial statistics pertaining to the reporting companies' operations during each of the years 1955 to 1962 inclusive.<sup>(1)</sup> A summary of these statistics is contained in the table on the following page, together with selected figures pertaining to Canadian manufacturing industries generally. An examination of these statistics reveals that during the period covered, the return on net worth realized by all the reporting companies taken together ranged from 2.5 per cent in 1957 to 11.1 per cent in 1955; in more recent years, it averaged about 5½ per cent, although in 1962 it again approached the record level achieved in 1955. When the return on net worth realized by these companies is compared to that realized in Canadian manufacturing generally, it will be found that in only two years during the period 1955 to 1960 did it exceed the national average, while in the other four years it was considerably below.

In the case of the E.I.A. companies the net sales per dollar of net worth have been consistently considerably higher than in Canadian manufacturing generally. This would tend to confirm the conclusion suggested by the data on capital investment in the radio apparatus industry quoted previously, namely that the radio apparatus industry is not nearly as capital intensive as Canadian manufacturing industries generally.

Another point worth noting is that materials account for just over 50 per cent of net sales; this is about the same ratio as in Canadian manufacturing industries generally.

### Competitive Setting

Apart from import duties, there are a number of other factors which affect the competitive position of the Canadian radio apparatus industry and which, therefore, are part of the conditions under which the industry operates. The principal of these are: safety and other regulations, patents, government procurement, and foreign control. Each of these is discussed below under a separate heading.

### Safety and Other Regulations

Most Canadian provinces have regulations requiring prior approval of all electrical apparatus intended for sale to the public in order to ensure its safety from electrical shock and fire hazard. In most of the provinces that have such requirements, Canadian Standards Association (CSA) certification to the effect that the

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(1) The statistics are based on an annual survey. Although not all members of the E.I.A. participate, those that do account for a very substantial portion of the industry's output.



FINANCIAL STATISTICS

(Millions of dollars, unless stated otherwise)

E.I.A. MEMBERS<sup>(a)</sup>

	<u>1955</u> \$	<u>1956</u> \$	<u>1957</u> \$	<u>1958</u> \$	<u>1959</u> \$	<u>1960</u> \$	<u>1961</u> \$	<u>1962</u> \$
Net sales (excl. excise and sales taxes)	297.9	276.7	241.0	232.5	242.3	236.7	239.5	318.9
Materials	181.6	161.3	129.3	119.7	130.3	122.7	128.2	164.3
Wages, salaries, employee benefits	62.8	69.0	66.5	72.1	73.7	76.1	71.6	94.9
Other expenses, less other income	37.6	33.7	36.3	26.9	25.4	25.9	26.9	37.1
Depreciation	<u>4.0</u>	<u>4.5</u>	<u>4.4</u>	<u>4.0</u>	<u>3.7</u>	<u>3.7</u>	<u>3.4</u>	<u>5.1</u>
Total Costs	286.0	268.5	236.5	222.7	233.1	228.4	230.1	301.4
Net profit before income tax	11.9	8.2	4.5	9.8	9.2	8.3	9.5	17.5
Less income tax	<u>5.2</u>	<u>4.3</u>	<u>2.9</u>	<u>3.8</u>	<u>4.8</u>	<u>4.4</u>	<u>4.7</u>	<u>8.1</u>
Net profit after income tax	6.7	3.9	1.6	6.0	4.4	3.9	4.8	9.4
- as per cent of net worth	11.1%	6.4%	2.5%	8.5%	5.8%	5.3%	5.8%	10.6%
Total net worth	60.3	61.1	63.7	70.6	76.0	73.5	82.2	88.6
Net sales per \$1.00 of net worth	\$4.94	\$4.52	\$3.78	\$3.29	\$3.19	\$3.22	\$2.91	\$3.60
<u>ALL MANUFACTURING</u> <sup>(b)</sup>								
Net profit after income tax	10.1%	10.2%	8.9%	7.8%	8.6%	7.7%	..	..
as per cent of net worth								
Net sales per \$1.00 of net worth	\$2.28	\$2.31	\$2.15	\$1.99	\$2.04	\$2.00	..	..

<sup>(a)</sup> Based on: Electronic Industries Association of Canada. Basic Industry Statistics Report. Toronto, annual.<sup>(b)</sup> Based on: Department of National Revenue. Taxation Statistics. Ottawa, Queen's Printer, annual.



equipment offered for sale or installation meets the standards embodied in the Canadian Electrical Code is usually accepted by provincial authorities in lieu of provincial approval, although some provinces continue to reserve the right to set their own standards and do their own inspection. In practice, manufacturers or importers of electrical apparatus usually obtain CSA approval which is, as a rule, accepted by provincial authorities.

The specifications which comprise the Canadian Electrical Code are intended to ensure protection from shock and fire hazard; they do not concern themselves with the quality or efficiency of the equipment, or of the components embodied in it. As a result, the specifications deal mostly with wiring, insulation, spacing and power input, as well as with the potential of certain of the components, such as the transformers or capacitors, embodied in the device.

CSA approval can be obtained by submitting a sample of the equipment to CSA Testing Laboratories in Toronto, to one of the district testing stations located in Montreal, Winnipeg and Vancouver; or, in case of overseas manufacturers, to CSA agencies in the United Kingdom, the Netherlands or Japan. The sample is inspected and tested for conformance with Canadian Electrical Code requirements and a report noting the changes needed to gain conformity is submitted to the manufacturer, or his agent. When all requirements have been met, the approved equipment is listed in the "List of Approved Electrical Equipment" published by CSA, and the manufacturer is granted permission to apply the appropriate CSA marking to the equipment. The CSA approval usually includes arrangements for periodic re-examination of the approved equipment to ensure that it continues to meet specifications.

In addition to the standards described above, there are also certain standards applicable to radio equipment which are prescribed and enforced by the federal Department of Transport in accordance with the provisions of the Radio Act.<sup>(1)</sup> Under this Act, all equipment, used in the transmission of "writing, signs, signals, pictures and sounds of all kinds" by means of Hertzian, or radio, waves must meet the specifications set out by the Department and must be licensed by it; in practice, this covers practically all types of radio equipment, including radio and television broadcasting and receiving equipment, radio communication equipment both for commercial and private use, as well as radar. Unlike the standards embodied in the Canadian Electrical Code, which concern themselves chiefly with safety, those of the Department of Transport are designed principally to ensure satisfactory performance of the equipment; compatibility with other equipment operating within the radio spectrum and the degree of interference generated by the equipment are among the principal factors considered.

It has been suggested that the necessity of complying with the requirements of the Canadian Electrical Code and of the Department of Transport places foreign manufacturers and importers at a disadvantage in comparison to domestic producers and, to a certain extent,

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(1) The Radio Act, Chapter 233, R.S.C. 1952, as amended.

this may be so. The actual effect that these requirements have on importations will, of course, vary between countries. Generally speaking, manufacturers in the United States and, to a certain extent, those in the United Kingdom, will find the task of meeting the Canadian specifications somewhat less onerous than those in Europe or Japan. Also, the burden of the additional costs involved in complying with them will vary with the volume of trade; it is likely to discourage brief, in-and-out incursions into the Canadian market, while not deterring to any great extent serious, long-term efforts to develop the Canadian market for a particular import. The conclusion that the Canadian requirements do not pose an unsurmountable obstacle to imports is supported by the fact that more than 60 foreign manufacturers or importers currently have CSA approval for the radio equipment which they bring into Canada.<sup>(1)</sup>

### Patents

Patents have played an important role in the development of the radio apparatus industry in Canada. In conjunction with the protective features of the Patent Act,<sup>(2)</sup> they have offered Canadian manufacturers of radio apparatus, and particularly of home radio and television receivers, a measure of protection from import competition far greater than that accorded by the Customs Tariff.

From almost the very beginning of the radio industry in Canada, the licensing rights under most of the Canadian patents relating to inventions in the radio field have been controlled by a company known as Canadian Radio Patents Limited (CRPL). The company, incorporated in November, 1926, was formed by five firms then active in the radio field, namely Canadian General Electric Company Limited, Canadian Marconi Company, Canadian Westinghouse Company Limited, Northern Electric Company Limited and Standard Radio Manufacturing Corporation (later Rogers-Majestic Corporation and now Philips Electronics Industries Ltd.), which between them owned practically all the Canadian patents pertaining to the basic inventions in the radio field. Each of the five companies vested in CRPL its licensing rights in return for capital stock in the company. The aim was to enable the member companies, as well as anyone else interested in the manufacture of radio receiving sets in Canada, to obtain under a single licence and for a single royalty payment the right to utilize all the basic inventions necessary for the construction of radio receiving sets. Prior to the establishments of CRPL, the companies holding the Canadian rights to the basic patents had to license each other separately; similarly, a prospective manufacturer had to negotiate with the several companies for the use of the patents held by each. The circumstances surrounding the establishment of CRPL and its operations before the war were examined in considerable detail in the two reports of the Board under Reference 104 (Radio Industry).

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(1) Canadian Standards Association Testing Laboratories. List of Approved Electrical Equipment. Twelfth Edition. Toronto, January, 1963, p. 901-917.

(2) The Patent Act, Chapter 203, R.S.C. 1952, as amended.



The number of CRPL licensees has varied considerably from time to time, reflecting closely the levels of activity in the radio industry. From the post-depression low of some 12 firms just before the war, the number of licensees increased to 37 in 1954, to decline again to the present roster of less than 20 as activity in the industry contracted. It has been the claim of the patent company that "no applications from any individual or company willing to manufacture in Canada as stipulated in the Canadian Patent Act were, or ever have been, refused."<sup>(1)</sup> On the other hand, the company has admitted that it has always refused licences to import radios and television sets of a type or kind which are being manufactured in Canada, although not objecting to the importations of equipment which is not readily available in Canada.<sup>(2)</sup> CRPL considers itself bound to take this position with respect to imports because of the provisions of the Canadian Patent Act, more particularly those in section 67, which lists the following to be among the abuses of an exclusive right under a patent:

" if the working of the invention within Canada on a commercial scale is being prevented or hindered by the importation from abroad of the patented article by the patentee or persons claiming under him, or by persons directly or indirectly purchasing from him, or by other persons against whom the patentee is not taking or has not taken any proceedings for infringement."<sup>(3)</sup>

It is also because of this provision in the Patent Act that CRPL has considered itself bound to take action, from time to time, against unlicensed importations of radio equipment.

The activities of CRPL have had several important effects on Canada's radio manufacturing industry. The availability for a single royalty payment of a single licence covering all the basic patents applicable to radio and television receivers, combined with CRPL's readiness to grant a licence to anyone seriously interested in the manufacture of radio apparatus in Canada have, undoubtedly, encouraged the manufacture of radio equipment in Canada by making it relatively easy for new firms to acquire the necessary patent coverage. Furthermore, by its refusal to license imports of equipment of the type manufactured in Canada, and by its readiness to take legal action for patent infringement against importations of unlicensed equipment, CRPL has been to a large extent responsible for the fact that most of the Canadian market for the type of radio and television equipment that is manufactured in Canada has, traditionally, been supplied from domestic sources. On the other hand, CRPL has been prepared to license imports of equipment not manufactured in Canada on a significant scale, such as portable transistor radios and colour television sets.

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(1) Royal Commission on Patents, Copyrights, Trade Marks and Industrial Designs. Record of Proceedings, November 19, 1954, p. 337.

(2) Same, p. 295.

(3) The Patent Act, Chapter 203, R.S.C. 1952, as amended.



Under the Patent Act, the term of Canadian patents is limited to 17 years from the date on which the patent is granted. However, new patents pertaining to improvements are being issued continuously. Bearing in mind the speed with which technological changes and innovations are occurring in the radio apparatus industry, and its highly competitive nature, it is not unreasonable to expect that patents will continue to provide some measure of protection to domestic manufacturers for some time to come.

CRPL has not had any rights under patents pertaining to components used in the manufacture of radio apparatus, such as vacuum tubes, transistors, or other semiconductor devices. Prior to World War II, there was a company, Thermionics Limited, which operated as a licensing agency for patent rights pertaining to vacuum tubes for non-commercial radio and television receiving sets. Although its purpose was similar to that of CRPL, its organization and effect on the industry were somewhat different; they were dealt with in detail in the Board's Report on Reference 104 referred to previously. It is understood that Thermionics Limited ceased functioning for all practical purposes just before World War II and that it surrendered its charter in December, 1947. Since then licences under patents pertaining to vacuum tubes have been negotiated between the individual tube manufacturers separately. However, the Board understands that most of the basic patents applying to entertainment tubes have expired and that those that exist are not very numerous and relate chiefly to improvements.

### Government Procurement

Purchases by government departments usually account for a significant portion of the radio apparatus industry's total shipments. For example, in recent years the proportion of the industry's shipments destined for defence uses alone accounted for between 13 and 28 per cent of the total; in addition purchases of substantial quantities of the equipment under review have also been made in recent years by government departments other than those concerned directly with defence, especially by the Department of Transport. The effect on the industry of the relatively large dependence on government procurement is twofold: (1) the project-by-project nature of government purchases tends to create relatively large fluctuations in the output of the industry, and (2) sales to government departments are usually not made under the competitive conditions normally encountered in civilian markets. The first of these effects is illustrated by the statistics contained in Appendix B; the second is discussed below.

In making government purchases it is customary to grant a preference to domestically produced goods. The nature and the extent of such preferences varies from time to time and from one department to another. However, as far as purchases of defence equipment are concerned, an official of the Department of Defence Production, giving evidence before the House of Commons Standing Committee on Estimates, confirmed that in 1958 Canadian producers were being given a 10 per cent margin over foreign producers and that in many cases,

because of strategic and logistic considerations, only Canadian suppliers were invited to tender.(1) The Board understands that the 10 per cent margin continues to be the norm. Moreover, in a report published by the Royal Commission on Government Organization it is observed that in procurement by the Department of Defence Production -

" Preference is frequently given not only to Canadian suppliers but especially to Canadian suppliers who offer higher proportions of Canadian content."(2)

In addition to the preference for Canadian-made equipment and for Canadian sources of components for use in the manufacture of such equipment, the Department of Defence Production also administers three programmes under which financial assistance is offered to Canadian manufacturers of defence equipment and components. Under one of these, capital assistance is offered to firms engaged in defence production for the acquisition of land and equipment and for the defrayal of certain pre-production and tooling costs connected with the establishment of competitive production capacity. Under the second programme, financial assistance is offered to firms with the view of establishing in Canada qualified sources for the production of components and materials used in defence equipment. The third programme is designed to sustain research and development capability in Canadian industry by giving financial assistance to firms participating in certain projects under the Canada-United States development and production sharing programme. The payments received in recent years by firms principally engaged in the manufacture of the equipment, components and materials under review in Reference 123 are shown in the following table:

PAYMENTS TO FIRMS IN THE RADIO APPARATUS INDUSTRY UNDER  
DEPARTMENT OF DEFENCE PRODUCTION ASSISTANCE PROGRAMMES

<u>Type of Programme</u>	<u>Fiscal Years Ended March 31</u>		
	<u>1961</u>	<u>1962</u>	<u>1963</u>
	\$'000	\$'000	\$'000
Capital assistance and defrayal of pre-production and tooling costs	150	557	449
Assistance to establish sources of components and materials	282	264	151
Assistance to sustain research and development capability	<u>624</u>	<u>955</u>	<u>979</u>
TOTAL	1,056	1,776	1,579

Source: Department of Finance. Public Accounts of Canada for the Fiscal Years Ended March 31. Volume 2. Ottawa, Queen's Printer, annual.

- (1) House of Commons, Standing Committee on Estimates. Minutes of Proceedings and Evidence, No. 19, July 23, 1958. Ottawa, Queen's Printer, 1958, p. 530.
- (2) Royal Commission on Government Organization. Reports, Volume 2, Supporting Services for Government. Ottawa, Queen's Printer, 1962, p. 131.



## Foreign Control

In a study prepared for the Royal Commission on Canada's Economic Prospects the nature and the extent of foreign control in the Canadian electronics industry were described as follows:

" Most manufacturers of electronic end products are affiliated in one way or another with companies in the U.S., the U.K., or the Netherlands. The degree of dependence varies from outright ownership to a considerable degree of control through holdings of voting stock.

" Of the 21 manufacturers of television receiving sets in Canada, for example, 15 are foreign controlled or owned. Out of 27 companies producing radio receiving sets in Canada, 16 are foreign controlled. The manufacture of vacuum tubes in Canada is completely foreign controlled through foreign majority interests in the five companies producing tubes in Canada.

" Most manufacturers of components in Canada, however, are either Canadian controlled or completely owned by Canadians. It should be noted, however, that the manufacture of components is largely concentrated in the smaller companies. Consequently it can be said that with a few exceptions all major companies in the electronics industry in Canada are either foreign controlled or foreign owned."(1)

There is no indication that the situation is significantly different now than it was in the mid-1950's when the above observations were made. In 1961, some 73 per cent of the capital employed in the electrical apparatus industry, which in this case includes the manufacturers of radio apparatus and related products, was owned abroad, while some 78 per cent was controlled abroad; the comparable figures for 1955 are 76 per cent and 82 per cent respectively.(2) Thus, while there has been some increase in Canadian ownership and control in recent years, foreign capital continues to predominate. Next to the automobile and rubber industries, the electrical apparatus industry shows the largest proportion of foreign ownership and control.

The relatively high degree of foreign affiliation has certain distinct effects on the competitive position of the radio apparatus industry in Canada. The unhindered access to technical information and know-how makes it possible for the Canadian firms to keep abreast of new developments in design and in production techniques. Many of the foreign parent companies are among the largest of the kind in the world and maintain research, experimental and testing facilities on a scale which firms dependent for sales on the relatively small Canadian market would find impossible to support.

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(1) Royal Commission on Canada's Economic Prospects. The Electronics Industry in Canada. Ottawa, Queen's Printer, 1956, p. 29-30.

(2) DBS Cat. No. 67-201, The Canadian Balance of International Payments. Ottawa, Queen's Printer, annual.



Among the other effects of close foreign affiliation are: a tendency on the part of the foreign-owned or controlled companies to import components and materials; a tendency towards multiplicity of products; and some lack of incentive, and even of the opportunity, to export. Each of these is discussed below in greater detail.

Surveys made by the Board show that a very substantial portion of imported equipment and components is brought in by the larger Canadian manufacturers of radio apparatus and components who are affiliated with foreign companies. While some of these imports consist of products not available from Canadian production, many do compete directly. Although some companies make vigorous efforts to manufacture or secure in Canada types of equipment or components which they now import, undoubtedly they are not unmindful of the equipment or components that are available to them from their foreign affiliates.

At the beginning of 1962 there were in Canada 21 firms engaged in the production of radio receiving sets and 11 making television receiving sets.<sup>(1)</sup> At about the same time there were in the United States, a country with ten times the population of Canada, 44 firms engaged in the manufacture of radios and 34 making television receivers.<sup>(2)</sup> When asked by the Board to comment on the comparative size in Canada and in the United States of the plants making household radios and television sets a spokesman for the E.I.A. testified as follows:

" There are more firms in the field per capita; I think that three manufacturers could handle the Canadian market on the same basis as the U.S. market is handled."<sup>(3)</sup>

To a large extent, the multiplicity of firms engaged in the manufacture of radio apparatus in Canada and the variety of products, particularly in the entertainment field, offered by them are directly attributable to the fact that most of the principal radio manufacturers in Canada are associated in some way with foreign companies and each manufactures a range of products similar, if not identical, to that produced by its associated company. The resulting multiplicity of types, sizes and models is illustrated by Table 5 in Appendix B, which shows the number of models of radios and television receivers and of phonographs manufactured by members of the E.I.A. during the 1962 model year. This indicates that the variety manufactured in Canada is very large relative to the size of the market.

The lack of incentive to export is attributable to the fact that Canadian subsidiaries of foreign companies do not usually ship competing products into markets served by affiliated companies. This accounts, in part, for the fact that Canadian exports of radio apparatus have been relatively small, despite the proximity to the large

(1) DBS Cat. No. 43-004. Radio and Television Receiving Sets, January, 1962. Ottawa, Queen's Printer, monthly.

(2) Electronic Industries Association. Electronic Industries Yearbook, letter of August 30, 1963. Washington, D.C., annual, p. 3.

(3) The Tariff Board. Transcript of Proceedings at the Public Hearings on Reference 123 (henceforth cited as Transcript), May 8, 1962. Toronto, Angus, Stonehouse & Co. Ltd., 1962, p. 207.

United States market and the obvious need for off-setting the disadvantages inherent in the small size of the Canadian market by seeking sales opportunities elsewhere. The recent success of several Canadian manufacturers in selling their products abroad would suggest that equipment designed and built in Canada can, under certain conditions, compete successfully.

### Manufacturing Processes

The manufacture of radio equipment consists, essentially, of the assembly of the various components, such as tubes, semiconductor devices, capacitors, resistors or transformers, into the carefully designed patterns which form the working networks, or circuits, of radio apparatus. The circuits range in complexity from the relatively simple ones containing only about a dozen basic components, such as those found in ordinary table radios, to the highly complex circuitry of commercial and military radio and radar devices, some of which may contain several hundred basic components. The assembly process consists, in most cases, of placing the various components on terminal boards or metal chassis in predetermined order and making connections between them by means of wire and soldered joints. All of these tasks are usually done by hand and mostly by women. The soldering iron is the implement most frequently seen on an assembly line, although the use of printed circuits and a trend towards miniaturization are reducing its importance.

The printed circuit, or printed wiring board, consists of a board of insulating material upon which is etched a conductive metal pattern representing the wire connections of a circuit. After the components have been placed in position on the wiring board, the underside of the board is dipped in a pot of molten solder, establishing a permanent connection between the conductive pattern and the components. Thus, this technique eliminates the laborious wiring and soldering of individual components by hand. Miniaturization, also referred to as subminiaturization, microminiaturization or ultra-miniaturization, is a further step towards simplification of production of radio and other electronic circuitry. It involves the manufacture and use of miniature circuits replacing connected components. The fact that one miniature circuit half an inch square is capable of performing the functions of as many as 20 conventional components gives some indication of the reductions in size and in complexity of radio circuitry that result from miniaturization.

Although by far the largest portion of the radio equipment produced in Canada consists of conventional components, and is hand-wired and hand-soldered, printed circuits are finding increasing use in certain large-volume applications, as in the circuits of the various types of entertainment equipment. Miniature circuits are not, as yet, competitive in price with the conventional components which they replace and, consequently, their use is confined almost entirely to equipment for military aircraft, missiles and space projects, where minimum size is an over-riding consideration. However, there is little doubt that as miniaturized components become less expensive, they will be increasingly used in other applications as well.



A fault in any of the components comprising the circuit of a radio device, or in any of the connections, may cause malfunctioning or failure. Consequently, testing of the equipment both during assembly and in the final pre-delivery inspection is an important phase of the manufacturing process. The equipment used for testing accounts for a substantial portion of the radio manufacturer's total investment in machinery and equipment. The test equipment can be divided into two categories: the measuring instruments used by practically all radio manufacturers for testing during the assembly and in pre-delivery inspection, and the more specialized equipment, known collectively as environmental test equipment, used chiefly by manufacturers of defence equipment to ensure that their products meet the more stringent requirements usually associated with that type of equipment. Both the measuring instruments and the environmental testing facilities are, of course, also used for applied research and development purposes. The instruments used to measure the performance characteristics of the equipment, such as its power output or frequency stability, include a great variety of devices, such as oscilloscopes, signal generators and various meters and counters; some of this equipment is considered to be under review in this Reference and is discussed further in Section II. The environmental testing facilities consist of equipment designed to test the performance of radio apparatus under extreme conditions. The equipment used for this purpose includes temperature, humidity and altitude chambers, shock and vibration machines, and equipment designed to simulate the effects of exposure to salt spray or explosive atmospheres. None of this equipment is considered to be under review in this Reference.

The differences in the methods of manufacturing the various components under review are so wide as to preclude their complete coverage in this Report, although some are described in the more detailed discussion of components in Section III. On the whole, the manufacture of components is a more complex process than is the assembly of complete equipment and usually requires a larger investment in machinery and other specialized equipment.





## SECTION II

### COMPLETE EQUIPMENT

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#### Introduction

This section deals with the complete equipment under review. Components used in the manufacture of complete equipment, including certain intermediate products such as loudspeakers and amplifiers, and the parts and materials used in the manufacture of the components themselves are considered separately in Section III of this Report.

The complete equipment under review includes products destined chiefly for home entertainment, such as radio and television receiving sets, phonographs, tape recorders, and their combinations, as well as other radio and television equipment, including radio and television broadcasting equipment and various types of radio and sound detection equipment, such as radar and sonar.

Canadian shipments of the complete equipment under review increased from just over \$100 million in 1952 to more than \$200 million in 1955, only to decline again to about \$130 million in 1959; since then, shipments have recovered somewhat, to a level of about \$140 million annually. The decline in domestic shipments since 1955 has been due almost entirely to a reduced demand for television receiving sets. Details of Canadian shipments of the complete equipment are given in Appendix B, Table 4.

Imports of complete equipment are estimated by the Board to have increased from less than \$10 million in the mid-1950's to about \$30 million in recent years. Much of the increase has been due to larger imports of portable transistor radios and tape recorders, of which production in Canada has never been large.

The market for the entertainment equipment and that for the other equipment are essentially separate and subject to different influences. For this reason, they are discussed below under separate headings.

#### Entertainment Equipment

Currently, there are between 20 and 30 firms in Canada manufacturing entertainment equipment, including home and automobile radios, television receiving sets, high-fidelity and stereophonic high-fidelity phonographs, and radio-phonograph and radio-phonograph-television combinations. Not only do these firms produce a relatively complete range of entertainment equipment, they also offer each product in a great variety of models. The principal statistics of the

firms engaged chiefly in the manufacture of entertainment equipment are given in Appendix B, Table 2; the variety of models which they make is shown in Table 5.

The principal categories of products which, at the present time, are not produced in Canada, or are produced in limited quantities only, are the so-called European-type multi-band mantel radios, portable transistor radios, television sets capable of colour reception and tape recorders. Canadian production of portable transistor radios has declined considerably in recent years owing to the inability of Canadian manufacturers to meet import competition. In January 1963, one firm did begin to manufacture colour TV sets in Canada on a limited scale. However, large scale production of colour TV sets is not likely to take place until telecasts in colour are available from Canadian television stations.

Reflecting the overwhelming popularity of television, total Canadian shipments of entertainment equipment increased from less than \$26 million in 1948 - the year during which television sets began to be manufactured in Canada - to an all-time high of more than \$154 million in 1955; in that year, television receiving sets, valued at some \$130 million, accounted for just under 85 per cent of total Canadian shipments of entertainment equipment. By mid-1956, more than one-half of Canadian households were equipped with at least one television set and sales began to decline, reaching a low of about \$54 million in 1960. However, owing to the growing popularity of high-fidelity and, in more recent years, of stereophonic-high-fidelity entertainment, the decline in sales of television sets was offset, to some degree, by an increase in sales of radio-phonograph combinations. Consequently, total Canadian shipments of entertainment equipment declined somewhat less, to about \$84 million in 1960; during that year television sets accounted only for about 64 per cent of the total value of entertainment equipment sold by Canadian manufacturers. The downward trend in shipments of entertainment equipment came to an end in 1961, owing chiefly to an increase in sales of television receiving sets and radio-phonograph combinations. The improvement in sales continued in 1962 and, according to preliminary indications, in 1963 also.

Imports of entertainment equipment have ranged from less than \$500,000 in 1949 to about \$20 million in recent years. The recent increase has been due chiefly to larger imports of transistor portable radios and tape recorders which, as already noted, are not manufactured in Canada to any great extent.

Exports of entertainment equipment, after being well in excess of one million dollars annually in the early 1950's, declined in subsequent years to a low of less than \$250,000 in 1958. In more recent years, there has been a considerable expansion in exports, particularly of radios and radio-phonograph combinations to the United States; in 1963, such exports alone were valued at just under \$5 million.

Details of Canadian shipments, imports and exports of entertainment equipment in post-war years are given in Appendices B, C and D. Recent trends in the markets for the four principal categories of



entertainment equipment, namely television receiving sets, radio receiving sets, phonograph and tape recorders are examined below under separate headings.

### Television Receiving Sets

With Canadian shipments exceeding \$50 million annually, television receiving sets, including radio-phonograph-television combinations, constitute in terms of value the largest single category of equipment under review in this Report.

Over the past ten years, the Canadian market for television receiving sets has fluctuated between 350,000 and 815,000 sets a year. Of this, by far the greatest portion has been supplied by Canadian manufacturers, their share of the total market over the decade having been about 97 per cent. The composition of the Canadian market for television sets since 1953, the first year for which statistics of imports are available, is shown in the following table.

APPARENT CANADIAN MARKET FOR TELEVISION RECEIVING SETS<sup>(a)</sup>

<u>Year</u>	<u>Canadian Shipments</u> No.	<u>I m p o r t s</u>			<u>Apparent Canadian Market(b)</u> No.	<u>Canadian Shipments as Per Cent of Total Market</u>
		<u>U.S.</u> No.	<u>Other</u> No.	<u>Total</u> No.		
1953	391,974	15,377	1,596	16,973	408,947	95.8
1954	611,206	19,076	9	19,085	630,291	97.0
1955	806,253	6,002	10	6,012	812,265	99.3
1956	613,895	8,337	4	8,341	622,236	98.7
1957	434,504	4,010	26	4,036	438,540	99.1
1958	432,318	13,923	37	13,960	446,278	96.9
1959	402,348	12,430	305	12,735	415,083	96.9
1960	342,488	14,220	35	14,255	356,743	96.0
1961	345,815	21,317	45	21,362	367,177	94.2
1962	422,051 <sup>(c)</sup>	15,224	1,140	16,364	438,415	96.3
1963	456,369 <sup>(c)</sup>	19,800	4,392	24,192	480,561	95.0

(a) Includes radio-phonograph-television, or three-way, combinations.

(b) Canadian shipments plus imports; exports have been negligible.

(c) Preliminary.

Source: Based on data compiled by the DBS, shown in greater detail in Appendices B and C.

The table shows the expansion of the market for television sets in the early 1950's when television was rapidly gaining popularity following its introduction into Canada, and the subsequent decline resulting from the gradual saturation of the market. The increases beginning in 1961 reflect the development of a replacement market and a trend towards multiple ownership evidenced by the fact that by mid-1962

more than one-quarter million Canadian households were equipped with more than one television set. The advent of compact portable models is undoubtedly contributing to this trend.

Imports of television sets have not exceeded 25,000 units and have never supplied more than 6 per cent of the total Canadian market in any one year. The United States has been by far the most important source; during the past ten years imports from that country accounted for more than 95 per cent of the total volume; some of these have been the higher priced colour receiving sets and other luxury sets not directly competitive with Canadian production. The remaining imports have come chiefly from the United Kingdom, Western Germany, the Netherlands and, beginning in 1962, from Japan. With the exception of the recent imports from Japan, the volume imported from any of the other countries has seldom exceeded 50 sets annually.

The Board has obtained information on prices in Canada and in the United States of a number of comparable television receiving sets. This shows the factory selling prices to be, on the average, about ten per cent higher in Canada than in the United States. A differential of this order of magnitude, quite obviously, does not offer any inducement to import over the existing duty of 20 p.c.; it is also indicative of the intense competition among Canadian manufacturers.

Imports from Japan did not begin on a significant scale until December, 1962, when 1,000 sets were imported. During 1963, some 4,300 sets were imported at an average price for duty purposes of \$85.84. Indications are that the imports from Japan consist chiefly of small, portable, transistorized sets of a type and size not normally manufactured in Canada. Such sets, with a screen ranging in size from about five to seven inches and having a retail price of between \$250 and \$300 are not directly competitive in price or in use with the 19" portable or the 23" console domestic sets which currently account for about 90 per cent of Canadian production. The lack of competition from Japan in the 19" and 23" sets was said to be attributable chiefly to the fact that picture tubes in these sizes are not, as a rule, manufactured in Japan; the standard Japanese television receiving sets, for the most part, have 14" screens, with a trend towards 16" screens developing only very recently.

Differences in screen sizes, styling and engineering standards tend to limit import competition from European countries also. This was confirmed by the spokesman for the Electronic Industries Association of Canada, who stated at the public hearing:

"... European television sets are not made to the same standards. There has been no threat to T.V. because they manufacture to different engineering standards and they couldn't bring them into North America;" (1)

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(1) Transcript, May 8, 1962, p. 159.



## Radio Receiving Sets

Radio receiving sets, including radio-phonograph combinations, constitute the second largest category of equipment under review. In recent years, shipments by Canadian manufacturers have been valued at between \$20 million and \$30 million, while imports have been in the order of \$12 million annually. Details of Canadian shipments and imports of radio receiving sets are given in Appendices B and C.

As the table on the following page indicates, the Canadian market for radios has undergone considerable fluctuation since the war. Reflecting the gradual satisfaction of the demand accumulated during the war years, the number of sets sold on the Canadian market declined from just under one million sets in 1947 to less than half a million in 1954. During this period imports were small, seldom supplying more than four per cent of the total market. Beginning in 1955 the market began to grow again, at first owing to larger sales of automobile radios supplied mostly from domestic sources and, beginning in about 1957, reflecting also the rapidly expanding imports of portable transistor radios from Japan. In recent years, imports from Japan, consisting mostly of portable transistor radios, have accounted for close to one-half of the total market in terms of volume, although for less than one-fifth in terms of value. While Canadian shipments of radio receiving sets declined somewhat in volume during the years 1957 to 1960, their value remained at about \$25 million. Beginning in 1961, both volume and value of shipments began to increase again owing to expanding sales of high-fidelity and stereophonic high-fidelity combinations; currently, these account for more than one-half of the total value of Canadian shipments.

Domestic manufacturers continue to supply most of the market for radios other than portable transistor and crystal radios; in 1963, for example, the total Canadian market for radio receiving sets other than imported transistor radios was about 940,000 sets of which about 780,000 sets, or some 83 per cent, were supplied from domestic production. If crystal radios, supplied exclusively by imports, could be excluded from these figures, the share of the market supplied by Canadian manufacturers would be much greater. Recent trends in the markets for transistor radios, radio-phonograph combinations, automobile radios, North American-type table and clock radios, European-type mantel radios, and crystal radios are discussed in greater detail under separate headings below.

Transistor Radios - As already noted, imports, which have accounted for practically all of the increase in total market in recent years, have consisted chiefly of transistor radios. For example, in 1963 transistor radios accounted, by volume, for 82 per cent of all imported radio receiving sets and for 86 per cent of those imported from Japan alone. Most of the transistor radios imported from Japan consist of portable, battery-operated models.



APPARENT CANADIAN MARKET FOR RADIO RECEIVING SETS (a)

Year	Canadian Shipments			I m p o r t s (c)				Re- exports	APPARENT CANADIAN MARKET(d) No.	Domestic Shipments as Per Cent of Apparent Market	
	Domestic No.	Export(b)	Total No.	U.K. No.	U.S.		Japan No.				Total No.
					No.	No.					
1947	931,633	52,643	984,276	13	67,964		-	1,921	997,691	93.4	
1948	611,678	27,815	639,493	26	1,849		-	162	613,402	99.7	
1949	757,717	33,334	791,051	53	1,829		-	74	759,525	99.8	
1950	783,935	36,837	820,772	291	2,526		-	36	786,725	99.6	
1951	592,819	35,576	628,395	283	9,019		-	245	601,886	98.5	
1952	533,607	34,131	567,738	2,164	17,280		-	177	552,906	96.5	
1953	714,128	23,329	737,457	845	23,223		-	207	738,285	96.7	
1954	471,571	16,049	487,620	531	14,556		1	100	487,252	96.8	
1955	611,793	10,164	621,957	836	36,684		1,213	513	651,218	93.9	
1956	734,994	5,662	740,656	2,733	52,738		16,828	369	813,018	90.4	
1957	727,010	5,817	732,827	4,349	56,736		69,233	1,009	872,807	83.3	
1958	744,675	643	745,318	7,240	74,824		156,824	1,945	1,032,361	72.1	
1959	695,907	17,402	713,309	11,590	82,194		395,240	2,190	1,270,023	54.8	
1960	644,802	4,136	648,938	13,856	78,540		531,022	12,254	1,364,059	47.3	
1961(e)	580,903	7,642	588,545	28,450	106,300		839,696	51,696	1,609,812	36.1	
1962(e)	673,780	15,525	689,305	17,063	75,825		589,637	10,494	1,483,381	45.4	
1963	784,168	25,863	810,031	4,535	100,088		668,374	8,135	1,713,097	45.8	

(a) Includes radio-phonograph combinations.

(b) Includes exports of television receiving sets prior to 1962; these were negligible.

(c) Includes imports of television receiving sets prior to 1953.

(d) Canadian shipments to the domestic market plus imports minus re-exports.

(e) Preliminary.

Source: Based on data compiled by DBS, shown in greater detail in Appendices B, C and D.

Although tube-type portable radios had been manufactured in Canada for many years, production of portable transistor radios did not commence, according to evidence received by the Board, until late in 1957; for reasons noted below, Canadian manufacturers have not been able to gain a significant portion of this market.

CANADIAN SHIPMENTS OF PORTABLE RADIOS<sup>(a)</sup>

<u>Year</u>	<u>Quantity</u> No.	<u>Value</u> \$'000	As Per Cent of Total Shipments of Radio Receiving Sets	
			<u>Quantity</u>	<u>Value</u>
1954	19,128	694	3.9	4.2
1955	35,063	902	5.6	4.7
1956	52,521	1,519	7.1	6.4
1957	60,983	1,750	8.3	6.8
1958	68,457	2,349	9.2	9.2
1959	72,295	1,930	10.1	7.9
1960	52,353	1,295	8.1	5.3
1961	28,566	662	4.9	2.4
1962 <sup>(b)</sup>	22,021	..	3.2	..
1963 <sup>(b)</sup>	16,196	..	2.0	..

(a) Prior to 1957 consisted mostly of battery-operated tube radios. Beginning in 1957, includes increasing proportion of battery-operated transistor radios which, in more recent years, are believed to account for all of the output.

(b) Preliminary.

Source: 1954-58 compiled by the Tariff Board from data collected by DBS; 1959 to 1961, DBS Cat. No. 43-205; 1962 and 1963, DBS Cat. No. 43-004.

Canadian shipments of portable radios have thus always been relatively small, having never exceeded 10 per cent of the total value of Canadian shipments of radio receiving sets. It is also evident that in more recent years, Canadian shipments of portable radios declined appreciably, despite the fact that, beginning in 1961, the Japanese government agreed to apply quantitative quota restrictions on exports from Japan to Canada of radios with three or more transistors.<sup>(1)</sup> There is evidence that as of the middle of 1963 only one firm in Canada was making portable transistor radios; at least two Canadian radio manufacturers have for some time been importing transistor radios from Japan, and one from Holland, which they have been distributing under their own brand names. Official statistics show that during 1963 Canadian radio manufacturers sold more than 70,000 imported portable radios.<sup>(2)</sup>

(1) The quotas have been as follows: 395,000 sets in 1961, 400,000 sets in 1962 and 420,000 sets in 1963.

(2) DBS Cat. No. 43-004, December, 1963, Table 5.

The inability of Canadian manufacturers to gain a larger share of the market for portable transistor radios is attributable to the combined effect of lower prices and greater variety of imports, particularly of those from Japan where some 75 per cent of the imported transistor radios originate. The following table indicates that the price to wholesalers, or distributors, of portable radios manufactured in Canada is, on the average, about 82 per cent higher than the price of transistor radios imported from Japan, inclusive of the 20 p.c. duty currently applicable on such imports.

AVERAGE COST TO WHOLESALERS OF CANADIAN AND JAPANESE  
TRANSISTOR RADIOS

	<u>Canadian</u> \$/set	<u>Japanese</u> \$/set
Manufacturer's f.o.b. price, excl. taxes <sup>(a)</sup>	23.18	10.35
Freight, insurance, etc. to land in Canada <sup>(b)</sup>	-	.39
Canadian duty - 20 p.c.	-	2.07
Canadian sales and excise taxes - 26 p.c.	<u>6.03</u>	<u>3.23</u>
<b>TOTAL COST TO WHOLESALERS</b>	<b>29.21</b>	<b>16.04</b>

(a) Canadian figure is the average selling value at works of portable radios shipped by Canadian manufacturers during 1961; Japanese figure is the average value for duty of transistor radios imported during 1962.

(b) Based on information supplied by a large importer-distributor of Japanese transistor radios.

Owing to the great variety of models and the difficulty of obtaining information on costs of production in Japan, the Board is unable to assess in exact terms the extent and the nature of the cost disadvantages under which Canadian manufacturers find themselves when competing against imports of transistor radios from Japan. However, there is no doubt that the difference in the scale of output in the two countries is one of the important factors. For example, shipments during 1962 of made-in-Canada transistor portable radios are reported on a preliminary basis to have been just over 22,000 sets. Japanese production of transistor radios during the same year is estimated at 13.5 million sets.

Radio-phonograph Combinations - Most of the Canadian market for radio-phonograph combinations, consisting largely of high-fidelity and stereophonic high-fidelity consoles, is supplied by domestic manufacturers; their shipments during 1963 are reported to have been in excess of 127,000 sets with an estimated value of more than \$22 million. Imports, which in 1963 were about 13,000 sets valued at \$1.2 million, come chiefly from West Germany and consist of radio-phonograph combinations roughly comparable to those available from



domestic production. There have also been some imports from Japan; on the basis of average values, these appear to be chiefly table or portable models. When asked whether imports of radio-phonograph combinations constituted a threat to domestic production, a spokesman for the Electronic Industries Association of Canada testified as follows:

" No, I don't think it is as great a threat as it was. There certainly was a serious impact from particularly West Germany, but it has grown less if I can judge by the fact that the West German imports are declining for the first ten months in 1961. ... Our people have successfully met the West German imports of radio-phonographs with a better product and a better style of product, a more acceptable product. As you know, our industries have had considerable success in exporting --- some have had considerable success in exporting radio phonographs to the United States." (1)

Canadian shipments of radio-phonograph combinations have grown consistently in recent years, from less than 31,000 sets valued at about \$3.4 million in 1955 to the more than 127,000 sets, valued in excess of \$22 million in 1963. There has also been a substantial increase in exports of radio-phonograph combinations, owing to the considerable success - mentioned in the quotation above - which two Canadian manufacturers, not affiliated with firms in the United States, have had in exporting to that country. Official statistics show that during the year 1963 some 17,890 radio-phonograph combinations were sold in export markets. (2) When these figures are related to those shown in Table 5 of Appendix D, it will be seen that radio-phonograph combinations account for more than half of the Canadian exports of radio receiving sets, and probably much more than half on a value basis.

Automobile Radios - The market for automobile radio sets is supplied largely by Canadian manufacturers. During the years 1959 to 1961 Canadian shipments were about 240,000 sets valued at about \$7 million annually; they increased to more than 300,000 sets in 1961 and to some 390,000 sets in 1963, reflecting the unusually high sales of passenger automobiles in those years. Imports appear to supply considerably less than 10 per cent of the total market and come chiefly from the United States. A substantial portion of the imports is brought in by Canadian radio manufacturers themselves; for example, during the year 1963, the radio manufacturers are reported to have sold some 15,500 imported auto radios. (3) The relative lack of imports is attributable in part to the fact that car radios complementing the engineering and styling features of North American automobiles are not, as a rule, manufactured abroad; also, one large Canadian automobile manufacturer has its car radios made in Canada by an affiliated company.

(1) Transcript, May 8, 1962, p. 197-198.

(2) DBS Cat. No. 43-004, December, 1963, Table 1.

(3) Same, Table 5.

North American-type Radios - Canadian production of the North American-type radios, variously referred to as table, mantel or home radios, has in recent years been around 250,000 sets annually, valued at between \$4 million and \$5 million. Most of these sets are encased in plastic cabinets and use tubes rather than transistors. About one-third of the mantel radios sold by Canadian manufacturers are equipped with clock mechanisms which usually perform the dual role of an alarm clock and automatic timer.

Imports come chiefly from the United States and are relatively small; in 1962, for example, they consisted of an estimated total of 30,000 sets, of which about one-half was brought in by Canadian manufacturers for re-sale. Mantel radios of the North American-type are not generally manufactured in Europe, and there is no evidence of any significant imports from there or from Japan.

European-type Radios - These include the large, multi-band models, usually encased in wooden cabinets, many equipped with push-button controls. There is no known manufacture of this type of radio in Canada. Most of those sold come from West Germany or Holland and sell at retail prices somewhat above those manufactured in Canada. According to evidence given at the public hearing, the European-type radios are chiefly in demand by immigrants from Europe.<sup>(1)</sup>

Crystal Radios - Most of these come from Japan and sell as toys at retail prices of less than \$5.00. The exact quantities imported in any one year are not known; there is no Canadian production of such sets.

Summary - It is evident that import competition in radio receiving sets in recent years has been confined largely to portable transistor radios. In these, Canadian manufacturers appear to face a sizeable cost disadvantage; at least two Canadian manufacturers import portable transistor radios from Japan, which they distribute under their own name. Canadian manufacturers continue to supply most of the market for radios other than portable transistor radios.

#### Phonographs

Considered under this heading are phonographs used for home entertainment purposes as well as the coin-operated phonographs, more popularly known as jukeboxes. There is no known Canadian manufacture of the coin-operated phonographs. Imports, averaging about 1,400 sets valued at about \$850,000, come exclusively from the United States; they are shown in Appendix C, Table 8.

Canadian shipments of phonographs for home entertainment purposes have declined considerably in recent years, from the post-war high of more than 280,000 units valued at about \$8 million in 1957 to

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(1) Transcript, May 8, 1962, p. 191.



an average of just under 200,000 units valued at about \$5 million during the past three years. The decline in shipments is due chiefly to increasing popularity of high-fidelity and stereophonic high-fidelity radio-phonograph or radio-phonograph-television combinations. Most of the phonographs currently manufactured in Canada are the table or portable models, with the console-type models having been superseded by combinations. The volume and the value of Canadian shipments in post-war years are shown in detail in Appendix B, Table 4.

The size of the total Canadian market for phonographs of the home entertainment type cannot be exactly determined owing to the fact that they are not reported separately in Canadian import statistics; rather, they are included together with parts for phonographs in import statistical class 9120, shown in detail in Appendix C, Table 7. However, export statistics of the United Kingdom and the United States, the two countries which account for most of the imports under s.c. 9120 and which do segregate complete phonographs from parts in their statistics, show that exports to Canada consist chiefly of parts. For example, exports of complete phonographs from the United Kingdom to Canada during 1961 were valued only at about \$6,000, while those from the United States during 1962 consisted of 5,649 units valued at about \$270,000 in Canadian funds. From this it is apparent that imports of complete phonographs are small in relation to domestic shipments.

#### Tape Recorders

Under this heading are considered only those tape recorders for entertainment or professional purposes which now qualify for entry under tariff item 445k. Such tape recorders may be either self-contained, frequently portable, units equipped with their own amplifying and speaker systems, or they may be designed to be used in conjunction with other equipment, such as high-fidelity or stereophonic high-fidelity radio-phonograph combinations.

Tape recorders are not manufactured in Canada on a significant scale, although small quantities have been produced intermittently. Imports increased considerably in recent years, from about 16,000 units valued at \$1.9 million in 1957 to some 95,000 units valued at about \$5.3 million in 1963. Close to 75 per cent of the increase was due to larger imports from Japan; in 1963, these consisted of about 66,000 units valued at \$1.3 million. The relatively low average value of the tape recorders imported from Japan, about \$19 per unit, is due to substantial importations of small, transistorized, portable sets. Holland, the United States and West Germany are the other principal suppliers. Tape recorders imported from these countries have a much higher value, ranging from about \$75 for those from Holland to about \$250 for those imported from the United States. Details of imports are given in Appendix C, Table 9.

#### Other Equipment

The principal categories of radio and related equipment other than entertainment equipment which are under review in this Report include ground, airborne and marine radio communication and navigation



equipment, radio and sound detection devices, including radar and sonar, radio and television broadcasting equipment and closed circuit television. Testing instruments, including signal generators and waveform measuring or analyzing instruments, are also considered in this subsection.

The total value of Canadian shipments of the radio and television equipment other than that used for entertainment is not available from published statistics. However, from information available to the Board, it appears that Canadian shipments of this equipment expanded rapidly in the immediate post-war years from less than \$10 million in the late 1940's to a high of over \$70 million in 1954, the year in which the defence build-up initiated as a result of the Korean conflict culminated. Since then, the value of shipments has declined to a range of between \$35 million and \$60 million, with a tendency towards the latter figure in more recent years. To a large extent, the wide fluctuations in shipments are a reflection of the relatively great dependence on defence procurement. Canadian shipments of the major categories of equipment under discussion are shown in Appendix B, Table 4; principal statistics of the firms manufacturing these products are given in Table 2.

Imports of the equipment considered in this subsection are not published product by product; rather, they are included together with many other products, chiefly components, under s.c. 6167 shown in Table 6 of Appendix C. On the basis of a partial survey of imports under this class, and on the basis of export statistics of the United States and the United Kingdom where 95 per cent of the imports originate, the Board estimates the annual value of imports of the complete equipment under consideration at less than \$15 million in recent years.

The markets for the principal categories of the equipment under discussion are considered below under separate headings.

#### Radio Communication Equipment

Radio communication equipment accounts, on the average, for about one-half of the total value of Canadian shipments of complete equipment, other than entertainment equipment. Whereas in the early 1950's, the radio communication equipment was destined primarily for defence, in more recent years the Canadian shipments, valued at between \$15 million and \$26 million annually, have been divided almost equally between civilian and defence uses. The annual value of civilian and defence shipments of radio communication equipment during the post-war years is shown in Appendix B, Table 4. The following table shows the break-down of the 1960 and 1961 shipments between the four principal categories:

CANADIAN SHIPMENTS OF RADIO COMMUNICATION EQUIPMENT  
BY PRINCIPAL CATEGORIES, 1960 and 1961

<u>Type of Equipment</u>		<u>Civilian</u> \$'000	<u>Defence</u> \$'000	<u>TOTAL</u> \$'000
Point-to-point	1960	10,497	5,554	16,051
	1961	2,497	6,809	9,306
Aviation	1960	1,279	5,670	6,949
	1961	2,541	7,190	9,731
Land mobile	1960	1,398	442	1,840
	1961	2,156	1,602	3,758
Marine	1960	495	471	966
	1961	2,503	393	2,896
TOTAL	1960	13,669	12,137	25,806
	1961	9,697	15,994	25,691

Source: DBS Cat. No. 43-206.

Recent trends in the markets for the four categories of radio communication equipment are discussed below under separate headings:

1. Point-to-point equipment includes all stationary radio equipment used to communicate with other stationary equipment. Examples of this type of equipment include the transceivers used by amateur, or ham, radio operators, as well as the transmitting and receiving equipment which forms a part of commercial and government microwave, tropospheric scatter or high frequency networks. In recent years, the point-to-point equipment has accounted, by value, for at least one-half of all the radio communication equipment shipped by Canadian manufacturers. The Board has received no evidence of any sizeable import competition in point-to-point radio communication equipment; on the other hand, for certain types, such as the transceivers used by ham operators, Canada relies chiefly on imports.
2. Aviation equipment includes both the airborne and the ground-based radio equipment used in air traffic communication. According to the evidence given at the public hearing by the spokesman for the Air Industries & Transport Association of Canada, and confirmed by a representative of the principal Canadian manufacturer of airborne radios for military purposes, no one in Canada manufactures airborne radios for civilian uses at the present time.<sup>(1)</sup> On the

<sup>(1)</sup> Transcript, May 9, 1962, p. 346 and 370-371.



other hand, the Board has been informed by the Department of Defence Production that some of the equipment for use on military aircraft is obtained in Canada. Also, most of the ground equipment used to communicate with civilian and military aircraft is understood to come from Canadian suppliers, although there are said to have been some imports, from time to time, from the United Kingdom and the United States. Canadian shipments of air communication equipment, both ground and airborne, have in recent years fluctuated between \$4 million and \$7 million, with defence shipments accounting for by far the largest portion of the total. The civilian air communication equipment is believed to have consisted largely of ground equipment destined for use by the Department of Transport. Statistics of imports are not available; much of the airborne equipment is imported already installed in aircraft and is not treated separately for customs classification or statistical purposes.

3. Land mobile equipment includes portable radios, such as the "walkie-talkie", as well as the two-way radios installed in automobiles, trucks or other vehicles used by police or fire-fighting forces, taxicab operators, service or repair establishments, public utilities or the armed forces. Canadian shipments in recent years fluctuated between \$2 million and \$6 million, mostly for civilian uses. No information is available concerning the value and source of imports, although there is no doubt that some mobile equipment, such as that for use in specialized army vehicles, is being imported.
4. Marine equipment includes both ship and shore equipment. In terms of value of Canadian shipments, this is the smallest category of radio communication equipment, with shipments in recent years valued at less than \$3 million. Most of the shore equipment, operated by the Department of Transport, is understood to be obtained in Canada, with imports confined mostly to shipborne equipment, particularly some of the specialized types used by the Royal Canadian Navy.

#### Radio Navigation Equipment

This is the radio equipment used for aeronautical or marine navigation. It includes the equipment carried aboard aircraft or ship, as well as the complementary facilities on the ground. The market for this type of equipment fluctuates widely being dependent largely on civilian and military aircraft procurement programmes, and on those of the Department of Transport which is responsible for most of the ground facilities. In recent years, Canadian shipments have been between \$500,000 and \$3.5 million. Imports of radio navigation equipment are not reported separately, but appear to be substantial. For example,



of the total of \$8.3 million of radio navigation equipment procured during 1960 for defence purposes, some \$7.3 million was imported from the United States.

#### Radio and Sound Detection Devices

Under this heading are considered the various types of radar and sonar. Radar, which is an abbreviation derived from the phrase radio detection and ranging, is a device used to detect the presence, location, shape, size and velocity of stationary or moving objects. Radar is commonly carried on commercial and military aircraft and ships. On the ground, radar is used for traffic control at airports and harbours, for meteorological observations and by the armed forces.

Sonar, a term apparently derived from the phrase sound navigation and ranging, performs essentially the same functions as radar, but employs under-water acoustic energy rather than radio energy. It is used in detecting the presence and the characteristics of submerged objects such as shoals and other under-water land formations, fish, ships and submarines. Its principal applications are military, in anti-submarine and other naval operations, although in recent years it has been finding increasing uses in civilian applications, for depth-finding and in commercial fishing.

Canadian shipments of radar and sonar devices have fluctuated in recent years between \$18 million and \$27 million annually, with radar accounting, on the average, for about 70 per cent of the total. Most of the radar has been destined for defence, although recently there has been an increase in the production of radar for civilian uses associated with the construction of radar installations at major Canadian airports. The Board has been informed by officials in the Department of Defence Production that in recent years more than half of the ground radar, about 75 per cent of the airborne radar, including all of that for the CF-104 aircraft programme, and about 30 per cent of the shipborne radar have been procured from Canadian sources. Moreover, a significant portion of the output in recent years has been for export; for example, exports of radar equipment, related devices and parts were valued at about \$14 million in 1961, \$21 million in 1962 and at just under \$16 million in 1963.<sup>(1)</sup> Practically all of the sonar manufactured in Canada is destined for military uses. Canadian manufacturers are understood to be supplying from 80 to 90 per cent of the defence requirements. In recent years, this has included attack sonar and variable depth sonar for the Royal Canadian Navy.

#### Radio and Television Broadcasting Equipment

Included under this heading is the studio equipment, including microphones, television cameras, control consoles, monitors and recorders, as well as the transmitters. Canadian shipments of

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<sup>(1)</sup> See Appendix D, Table 5.

radio and television broadcasting equipment were valued at between one and two million dollars in the years 1955 to 1959; they increased to \$6 million in 1960 and were in excess of \$8 million in 1961. Imports of this type of equipment are not reported separately in Canadian import statistics. However, export statistics of the United States show that shipments to Canada of radio and television broadcasting equipment averaged about \$3.5 million in Canadian funds over the past three years. Export statistics of the United Kingdom also indicate intermittent shipments of complete radio and television transmitters to Canada; these have not exceeded \$500,000 in recent years.

It would thus appear that although several firms manufacture radio and television broadcasting equipment in Canada, there continue to be substantial imports, chiefly from the United States. There are indications that much of the imported equipment is brought in by Canadian subsidiaries of firms in the United States and in the United Kingdom. No evidence was placed before the Board indicating that imports constituted a threat to domestic production.

### Testing Instruments

The Board is here concerned only with the radio-frequency-signal-generating, measuring and analyzing instruments used in the manufacture or testing of radio apparatus and related products. Included among these are the various types of signal generators, including frequency, noise, pulse or square wave generators and oscillators, as well as the waveform measuring and analyzing instruments such as oscilloscopes, oscillographs, other distortion and waveform analyzers, and frequency counters and meters.

With few exceptions, the radio-frequency-signal-generating, measuring and analyzing instruments are not at present manufactured in Canada. Most of the instruments that are used in Canada are of United States manufacture, although equipment made in the United Kingdom and in certain other European countries, including France, Germany and the Netherlands, is also offered for sale in Canada. Imports of this type of equipment are not reported separately in Canadian statistics. Export statistics of the United States, the principal supplier, indicate that shipments to Canada of signal generators and of waveform measuring, analyzing and/or testing instruments have averaged about \$2.7 million over the past three years.<sup>(1)</sup>

The types of instruments that are currently made in Canada include a limited number of signal generators, oscilloscopes and frequency meters. Apart from being available only in a limited range, the instruments that are made in Canada also tend to be confined to the lower-priced, general purpose models. The Board has been informed that Canadian manufacturers do not, as a rule, compete directly with the instruments that are being imported as the latter include a substantial portion of the more specialized, higher-priced types that are

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(1) U.S. Bureau of the Census. United States Export Statistics, Report FT 410, Part II. Washington, D.C., U.S. Government Printing Office, annual, Schedule B numbers 70372 and 70374.



not made in Canada. An examination of the catalogues of the domestic and of the principal foreign manufacturers tends to support this conclusion.

Thus, it would seem that the Canadian market for radio-frequency-signal-generating, measuring and analyzing instruments amounts to several million dollars annually, that it is supplied chiefly by imports and that Canadian production is confined to a limited range of instruments suited mostly for general purpose applications. As noted in the discussion of manufacturing processes earlier in this Report, testing equipment accounts for a substantial portion of the radio manufacturers' total investment in machinery and equipment.

#### Existing Tariff Treatment of Complete Equipment

The following table lists the principal tariff items under which the main categories of complete equipment under review are now classified. Full descriptions and histories of most of the tariff items referred to are shown in Appendix A.

<u>Type of Equipment</u>	<u>Tariff Item</u>	<u>Rate of Duty</u> <u>B.P.</u>	<u>M.F.N.</u>
<b>Entertainment Equipment:</b>			
Television receiving sets	445d	Free	20 p.c.
Radio receiving sets	445d	Free	20 p.c.
Television-radio-phonograph combinations	597a(2)	15 p.c.	20 p.c.
Radio-phonograph combinations	597a(2)	15 p.c.	20 p.c.
Phonographs	597a(2)	15 p.c.	20 p.c.
Tape recorders	445k	15 p.c.	22½ p.c.
<b>Other Equipment:</b>			
Radio and TV broadcasting equipment:			
Studio	445d	Free	20 p.c.
	or 445k	15 p.c.	22½ p.c.
	or 462i	Free	Free
Transmitters (incl. antennas)	445d	Free	20 p.c.
Testing instruments, viz. signal generators and waveform measuring and analyzing instruments:			
- of a class or kind not made in Canada	445n	Free	7½ p.c.
- of a class or kind made in Canada	445k	15 p.c.	22½ p.c.
- for use by educational, scientific and certain other institutions	696(1)	Free	Free
Radio communication and navigation equipment:			
Airborne, of types or sizes not made in Canada	440r	Free	Free
Shipborne, of a class or kind not made in Canada	440g(1)	Free	Free
Other	445d	Free	20 p.c.

(Cont'd)



<u>Type of Equipment</u>	<u>Tariff</u>	<u>Rate of Duty</u>	
	<u>Item</u>	<u>B.P.</u>	<u>M.F.N.</u>
Other Equipment: (Concluded)			
Radio and sound detection devices:			
Radar:			
Airborne, of types or sizes not made in Canada	440r	Free	Free
Shipborne, of a class or kind not made in Canada	440g(1)	Free	Free
Other	445d	Free	20 p.c.
Sonar:			
Airborne, of types or sizes not made in Canada	440r*	Free	Free
Shipborne, of a class or kind not made in Canada	440g(1)	Free	Free
Other, of a class or kind not made in Canada	445n	Free	7½ p.c.
Other, of a class or kind made in Canada	445k	15 p.c.	22½ p.c.

\*Sonar qualifies for entry under this item as an "instrument".

Under the British Preferential Tariff, all radio apparatus now qualifies for duty-free entry, while most of the related equipment which is not radio apparatus in the strict sense of the word, such as phonographs and tape recorders, is subject to a duty of 15 p.c. Under the Most-Favoured-Nation Tariff, radio apparatus is generally dutiable mostly at 20 p.c., the two notable exceptions being airborne radio navigation and communication equipment of types or sizes not made in Canada and all shipborne radio equipment of a class or kind not made in Canada, both of which qualify for duty-free entry under end-use items specifically providing for such equipment.

#### Proposals and Other Representations

During the public hearing, the Board received twelve representations pertaining to complete equipment. The principal of these was the submission of the Electronic Industries Association of Canada (E.I.A.), which counts among its members most of the manufacturers of radio apparatus in Canada. The E.I.A. proposed a new classification of radio apparatus and related equipment, with rates of 15 p.c., B.P. and 20 p.c., M.F.N. applicable to most of the proposed categories; thus, on most of the equipment the duty-free entry under the British Preferential Tariff would be replaced by a duty of 15 p.c., while the most-favoured-nation rate of 20 p.c. would remain unchanged.

The remaining eleven representations consisted chiefly of support for, or opposition to, the E.I.A. proposals. The principal opposition came from the Canadian Importers & Traders Association Inc. and from certain manufacturing interests in the United Kingdom,

although two Canadian manufacturers, Philips Electronics Industries Ltd. and Collins Radio Company of Canada, Ltd., also took exception to the imposition of a 15 p.c. duty under the British Preferential Tariff. The Canadian Electrical Manufacturers Association, on the other hand, supported the E.I.A. proposals. Details of the proposals and representations follow.

### E.I.A. Proposals

The E.I.A. proposal respecting complete equipment contemplates the establishment of two new tariff items, each subdivided into several sub-items, which together would encompass all of the equipment now entered under tariff item 445d, the phonographs and combinations classified under item 597(2) and certain equipment now entered under several other items, such as 414c, 445k and 445n. The two items proposed by the E.I.A., as amended,<sup>(1)</sup> are reproduced in full on the following two pages.

The E.I.A. also proposed changes in the wording of existing end-use items 440r and 696(1). With respect to item 440r the E.I.A. proposed that the provision for radio for navigation and air traffic communication be deleted from it and be provided for in a new item as follows:

Radio for navigation and air traffic communication and parts thereof, when of a class or kind not made in Canada, and for use in aircraft, airborne aircraft equipment, or parts of aircraft, or airborne aircraft equipment.

The equipment that would qualify for entry under this proposed item would continue to enter duty-free, as it does now under the present item 440r. The significant change would be the replacement of the qualifying phrase "when of types or sizes not made in Canada", now in item 440r, by the phrase "when of a class or kind not made in Canada" in the proposed item.

For tariff item 696(1), the E.I.A. proposed that the provision for "mechanical equipment of a class or kind not made in Canada" be expanded to "electrical, electronic and mechanical equipment of a class or kind not made in Canada". At present any electrical and electronic equipment that is classified as "scientific apparatus" or "instruments" is entitled to entry under item 696(1), even if it is of a class or kind made in Canada.

It will be noted that throughout the proposed items as well as in the proposed amendment to existing item 696(1) use is made of the qualifying adjective "electronic". The E.I.A.'s submission contained definitions of electronics and of electronic products which are reproduced below:

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(1) Under the original proposal placed before the Board at the May, 1962 hearing, proposed item 925 was not subdivided and all the equipment was dutiable at rates of 15 p.c., B.P., 20 p.c., M.F.N. and 30 p.c., Gen.

## ITEMS RELATING TO COMPLETE EQUIPMENT

PROPOSED BY

ELECTRONIC INDUSTRIES ASSOCIATION OF CANADA

E.I.A. Item No.*	Proposed Wording	Proposed Rates		
		B.P.	M.F.N.	Gen.
925	(1) Electronic apparatus and parts thereof, n.o.p., viz: Amplifiers and amplifier systems; Closed circuit television equipment; Electronic characteristics testing instruments; Electronic detection and navigational apparatus; Electronic quantity indicating and recording instruments; Nuclear radiation detection and measuring instruments; Radio and television broadcast audio equipment; Radio communication equipment and other radio apparatus; Signal generators; Television broadcast studio equipment; Wave form measuring, analyzing and/or testing instruments.	15	20	30
	<u>Note</u> - Notwithstanding the above list it is not intended that flight simulators be included under any of the above headings.			
	(2) Electronic apparatus and parts thereof of a class or kind not made in Canada, n.o.p., viz: Electronic characteristics testing instruments; Electronic quantity indicating and recording instruments; Nuclear radiation detection and measuring instruments; Signal generators; Wave form measuring, analyzing and/or testing instruments.	Free	7½	30



<u>E.I.A.</u> <u>Item No.*</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
925	(3) Electronic computers and electronic information processing machines and parts thereof, n.o.p.	10	15	30
	(4) Core memories and magnetic tape systems for use in electronic computers and electronic information processing machines:			
	(a) When of a class or kind not made in Canada	Free	Free	30
	(b) When of a class or kind made in Canada	10	15	30
926	(1) Radio receivers and parts thereof n.o.p.:			
	(a) Domestic radio receivers, including home, portable and auto	15	20	30
	(b) Other radio receivers	15	20	30
	(2) Phonographs, with or without radio receivers or tape decks, and parts thereof n.o.p.:			
	(a) Domestic, including home, portable and auto	15	20	30
	(b) Other phonographs	15	20	30
	(3) Television receivers, with or without radio receivers, tape decks or record playing equipment, and parts thereof n.o.p.:			
	(a) Domestic, including home, portable and auto	15	20	30
	(b) Other television receivers	15	20	30
	(4) Tape recorders and reproducers and parts thereof n.o.p.:			
	(a) Domestic, including home and portable	15	20	30
	(b) Other	15	20	30

\*The E.I.A. item numbers are for ease of reference only; they bear no relationship to any of the existing items in the Customs Tariff.

Electronics is that branch of science and technology which deals with the study, application, and control of the phenomena of conduction of electricity in a vacuum, in gases, in liquids, in semiconductors [and in conducting(1)] and super-conducting materials.

Electronic products consist of materials, parts, components, sub-assemblies and equipment which employ the principles of electronics in performing their major functions. These products may be used as instruments and controls in communication, detection, amplification, computation, inspection, testing, measurement, operation, recording, analysis, and other functions employing electronic principles.

In support of its various proposals the E.I.A. stated:

" The Board will recall that, apart from the addition of certain temporary Order in Council items, our basic tariff schedule - tariff items 445d, 445o(i), (ii), (iii), and 597a(2) - have remained largely unchanged since the previous reference in 1937/1938. During the past twenty-four years important changes have taken place within the industry, and we welcome the opportunity of submitting an updated tariff schedule employing current terminology, plus certain deletions of obsolete products combined with provision for new products which have developed since the industry's last tariff review.

" It is also our hope that the proposed tariff schedule will lend itself to easy amendment in future years by additions or deletions as technology within the industry changes."(2)

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"... It is a major objective on our part that this reference should result in a tariff schedule that will enable the Dominion Bureau of Statistics to establish improved statistical information."(3)

The proposed imposition of a 15 p.c. duty on radio apparatus imported under the British Preferential Tariff was justified on the following grounds:

" In view of ... substantial imports entering Canada on a duty-free basis, we are proposing a rate of 15 per cent British Preferential in some items. This Association is of the opinion that the present differential of free, B.P., and 20 per cent M.F.N. under tariff item 445d is an unrealistic margin of

(1) In the course of the public hearing the E.I.A. proposed that the definition be amended by deleting the words in square brackets.

(2) Transcript, May 7, 1962, p. 9.

(3) Same, p. 12-13.

"British Preference. We believe also that competing manufacturers in the U.K. already enjoy sufficient advantage cost-wise through lower labour rates plus a larger domestic market, without extending to them the added blessing of duty-free access to our market. In those selected items where we propose a 15 per cent B.P. rate we are adopting the rate approved by parliament under 597a(2) and in most of the items covering electrical products generally (tariff items 445 to 445k inclusive)."(1)

#### Analysis of E.I.A. Proposals

Under the E.I.A. proposals, entertainment equipment is covered by proposed item 926, while the other equipment is enumerated in proposed item 925. As far as the entertainment equipment covered by proposed item 926 is concerned, the duties on radio and television receiving sets would be increased from free to 15 p.c. under the British Preferential Tariff, with no change in rates under the Most-Favoured-Nation Tariff. Radios and television sets are now entered under item 445d, duty-free from countries entitled to the British preference and subject to a duty of 20 p.c. from most of the other countries. The proposal contemplates no change in rates of duty on phonographs and combinations which are now entered under tariff item 597a(2). The tape recorders and reproducers covered by part (4) of proposed item 926 are now classified under tariff item 445k; under the proposal, the most-favoured-nation rate would be reduced from  $22\frac{1}{2}$  p.c. to 20 p.c., with no change in rates under the other Tariffs.

The other equipment covered by proposed item 926 can, for convenience, be grouped as follows:

#### Amplifiers and amplifier systems

This description is understood to encompass the various components, such as microphones and loudspeakers, which form a sound system, such as a public address system. When imported for incorporation into a sound system, the components are at present dutiable under item 445k at rates of 15 p.c., B.P. and  $22\frac{1}{2}$  p.c., M.F.N.; thus, there would be no change in duty under the British Preferential Tariff and a slight reduction under the Most-Favoured-Nation Tariff. Some of the components, such as the loudspeakers and microphones, are also considered in Section III of this Report.

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(1) Transcript, May 7, 1962, p. 21.



Electronic characteristics testing instruments  
 Electronic quantity indicating and recording instruments  
 Nuclear radiation detection and measuring instruments  
 Signal generators  
Wave form measuring, analyzing and/or testing instruments

Most of these instruments are at present ruled to be of a class or kind not made in Canada and are entered under tariff item 445n, which bears the same rates of duty as part (2) of E.I.A. proposed item 925. The measuring and testing equipment that is deemed to be of a class or kind made in Canada is now entered chiefly under tariff item 445k which, as noted above, bears rates of 15 p.c., B.P. and  $22\frac{1}{2}$  p.c., M.F.N. Under the proposal, such equipment would be entered under part (1) of item 925, with no change in the British preferential rate and a slight reduction in the most-favoured-nation rate.

Closed circuit television equipment  
 Electronic detection and navigational apparatus  
 Radio and television broadcast audio equipment  
 Radio communication equipment and other radio apparatus  
Television broadcast studio equipment

At present, most of this equipment is entered under tariff item 445d, duty-free under the British Preferential Tariff and at a rate of 20 p.c. under the Most-Favoured-Nation Tariff. Thus, the E.I.A. proposal would result in an increase in the British preferential rate from free to 15 p.c., with no change in the most-favoured-nation rate.

Electronic computers  
Core memories and magnetic tape systems

At present, digital computers and their parts are understood to be classified under tariff item 414c, which provides for bookkeeping, calculating and invoicing machines and their parts, while analogue computers and parts are entered mostly under item 445n as electrical apparatus of precision of a class or kind not made in Canada. The Board does not consider this equipment to be under review in the present Reference.

From the above analysis it is apparent that the principal effect of E.I.A. proposals would be the imposition of a British preferential duty of 15 p.c. on the radio apparatus and related equipment which is now entered duty-free under tariff item 445d. The following tabulation shows imports of complete equipment under tariff item 445d from the most-favoured-nation countries and from the British preferential countries separately:

IMPORTS OF COMPLETE EQUIPMENT UNDER TARIFF ITEM 445d

Year	Radio Receiving Sets(a)		TV Receiving Sets(b)		Other Radio & Wireless(c)		TOTAL EQUIPMENT	
	B.P. \$'000	M.F.N. \$'000	B.P. \$'000	M.F.N. \$'000	B.P. \$'000	M.F.N. \$'000	B.P. \$'000	M.F.N. \$'000
1947	1	2,213	..	..	392	6,516	393	8,729
1948	4	267	..	..	769	4,870	773	5,137
1949	16	187	..	..	331	6,452	347	6,639
1950	48	206	..	..	1,104	8,345	1,152	8,551
1951	32	551	..	..	1,463	12,169	1,495	12,720
1952	190	1,155	..	..	1,716	20,256	1,906	21,411
1953	37	1,217	318	1,936	2,786	38,909	3,141	42,062
1954	43	878	4	2,076	4,700	53,754	4,747	56,708
1955	36	1,270	1	512	4,710	56,292	4,747	58,074
1956	97	2,072	-	790	5,153	39,574	5,250	42,436
1957	150	2,794	*	397	4,069	29,990	4,219	33,181
1958	224	6,329	*	1,929	4,313	28,974	4,537	37,232
1959	301	11,356	38	1,705	6,150	26,628	6,489	39,689
1960	363	11,489	3	2,000	8,818	27,650	9,184	41,139
1961	708	13,076	*	3,076	10,535	30,787	11,243	46,939
1962	771	10,952	2	2,649	8,048	41,743	8,821	55,344
1963	378	10,688	1	3,479	8,470	36,000	8,849	50,167

Source: DBS Cat. No. 65-203 and 65-007.

(a) Prior to 1962, s.c. 6173; in 1962 and 1963, s.c. 6181, 6182 and 6183.

(b) s.c. 6174; prior to 1953, included with "Radio Receiving Sets".

(c) s.c. 6167. It is estimated that components account for about 85 per cent and 55 per cent of the imports from the most-favoured-nation and the British preferential countries, respectively.

The table shows that although imports from the British preferential countries have been increasing at a faster rate than those from the most-favoured-nation countries, they continue to be relatively small by comparison, and that they consist mostly of equipment other than that used for entertainment. Surveys undertaken by the Board show that radar, radio communication, and radio and television broadcasting equipment are the principal categories of equipment being imported from the United Kingdom; some of this equipment is for use by the armed forces and consists of specialized types not available from Canadian suppliers.

The E.I.A. proposal to replace, in effect, the words "types or sizes" in tariff item 440r with the words "class or kind" would very likely reduce the number of categories of radio communication and navigation equipment, and parts thereof, qualifying for duty-free entry under the item. In fact, during the public hearing a spokesman for the



E.I.A. stated that the Association's main interest in item 440r was in the area of component parts.<sup>(1)</sup>

As far as complete radio communication equipment is concerned, it was noted earlier in this section that at present only one firm manufactures this type of equipment in Canada; all of its output is destined for military use. The one Canadian manufacturer, Collins Radio of Canada, Ltd., opposed the Association's proposal. There is no known Canadian production of airborne radio equipment for civilian use at the present time.

Of the airborne navigation equipment, two types are manufactured in Canada, namely the TACAN and Doppler navigation systems. Canadian requirements for these two types are met mostly from domestic production, and there are substantial exports of the Doppler equipment. The types that are not made, such as the VOR and ILS systems, must be imported as there are no suitable substitutes available from domestic sources.

As far as E.I.A.'s proposal respecting tariff item 696(1) is concerned, the Board does not deem that consideration of this item is relevant to the present inquiry; issues other than those before the Board in this Reference would be involved.

With respect to the definition of electronics and of electronic products, an expert witness for the E.I.A., who was largely responsible for their formulation, commented as follows:

"Mr. Chairman, the question of a definition of an electronic product, or even the word 'electronics' has been one which has changed very greatly over the past even few years and the technology is growing at such a fast rate that it is hard to state what the word 'electronics' really refers to. The definition which has been coined here appeared to be one of the best ones that we could find to cover the broad area. There is a different definition which appears in the Institute of Radio Engineers' dictionary. These terms are always under revision and review and I believe that the definition that we have chosen to use appears to be as good as any definition that you can find."<sup>(2)</sup>

From this it appears that no definition offers a firm basis for making an exact distinction between electrical products on the one hand, and the so-called electronic products on the other. The difficulty seems to stem from the historical fact that what is loosely referred to as applied electronics has developed from electrical engineering, of which it continues to be an inseparable part. There is a singular lack of unanimity, even among the experts, on where electrical engineering stops and electronics begins. In view of this, and also bearing in mind that this Reference is concerned chiefly with radio apparatus and related products, rather than with the entire gamut

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(1) Transcript, May 9, 1962, p. 361-362.

(2) Same, May 7, 1962, p. 73-74.



of products usually included under the name electronics, it does not appear appropriate to introduce the term "electronics", or its derivatives, into the Customs Tariff.

#### Other Representations

The remaining eleven representations are summarized below in the order in which they were presented at the public hearing.

Canadian Electrical Manufacturers Association - This Association endorsed the E.I.A. proposals respecting tariff classification of complete equipment and the imposition of a 15 p.c. duty under the British Preferential Tariff with the proviso that "imports under Proposed Item #925 will be limited to those classes of equipment enumerated by name in the item."(1)

Philips Electronics Industries Ltd. - This firm was one of two Canadian manufacturers of radio apparatus, members of the E.I.A., which expressed disapproval with the proposed imposition of a duty under the British Preferential Tariff. In its submission, the firm stated its position as follows:

"We agree with the submission of the aforesaid Association [the E.I.A.] in its general philosophy and in its recommendations with the single and important exception of the proposed increase in the British Preferential rates. Our company opposes strongly any suggestion of raising at this time a new Tariff barrier between Canada and Britain."(2)

Among its several arguments against the imposition of a duty under the British Preferential Tariff, the company mentioned the fact that: "Figures from the Dominion Bureau of Statistics demonstrate clearly that Britain poses no threat whatever as an exporter to Canada of domestic electronic entertainment apparatus ..."(3)

Mel Sales Limited - This firm appeared before the Board in its role of a Canadian sales representative of foreign manufacturers of testing and measuring instruments. It proposed that tariff item 445n be revised to read as follows:

445n Electrical instruments and test apparatus, and accessories designed for use therewith, of a class or kind not made in Canada, and complete parts thereof.

<u>British</u> <u>Preferential</u>	<u>Most-Favoured-</u> <u>Nation</u>	<u>General</u>
Free	7½ p.c.	30 p.c.

(1) Transcript, May 8, 1962, p. 216.

(2) Same, p. 221.

(3) Same, p. 224.

The proposed item bears the same rates of duty as those now in existence under item 445n, where some of the testing equipment that would be covered by the proposed item, namely certain precision meters and gauges, are now entered. However, the proposed item would also cover a great variety of other electrical instruments most of which are now entered under tariff item 445k; it would also include accessories which at present are not allowed entry under item 445n.

In support of its proposal, Mel Sales Limited stated:

"We believe that the new wording of this tariff would make available to Canadian Manufacturers and Agencies at preferred tariffs, electronic instrumentation which have been developed for large markets in the United States, so that these Canadian manufacturers and agencies can engineer, design and produce products for Canadian and foreign markets, and, at the same time, be able to compete in foreign markets at competitive prices, using the latest equipment for design and quality control."(1)

The company's proposal had the written support of eleven firms in Canada interested in the importation of testing equipment; included among these were the Canadian subsidiaries of two manufacturers in the United States who together account for much of the radio frequency testing apparatus sold in Canada.

Allen-Bradley Canada Limited - This firm is engaged chiefly in the manufacture of industrial electrical motor starters and control gear; it also produces radio resistors and certain other components.

The company expressed support for the E.I.A. proposal to charge a duty under the British Preferential Tariff on the grounds that "it was never intended that British suppliers should be guaranteed a marked advantage over the Canadian producer in the Canadian marketplace."(2)

Canadian Importers & Traders Association Inc. - The Association proposed two new items, one listing the various types of entertainment equipment and the other providing for all the other radio equipment, with rates of duty substantially the same as now apply to such equipment. It opposed the imposition of a duty on complete equipment under the British Preferential Tariff as requested by the E.I.A. on the grounds that:-

"The effect of this would again be to divert business from the British market where we have a favourable balance of trade toward the American market where we have an unfavourable balance of trade and where many restrictions on Canadian imports exist. It should be noted that many of the products covered do not in fact represent a substantial level of imports into Canada from Britain."(3)

(1) Transcript, May 8, 1962, p. 237.

(2) Same, p. 249.

(3) Same, p. 260.

Air Industries & Transport Association of Canada - This Association was concerned chiefly with tariff item 440r in so far as it relates to radio for navigation and air traffic communication. It requested that no change be made in the present provision. In support of its position the Association stated:

" In our submission this equipment is not now made in Canada and is unlikely to be made in Canada in the foreseeable future. No useful purpose would be served in making this equipment liable to customs duties at the present time."(1)

Collins Radio Company of Canada, Ltd. - At present, this is the only firm in Canada engaged in the manufacture of airborne radio communication equipment; all of its output is at present destined for defence. The firm also manufactures marine and ground transmitters and receivers, and tropospheric scatter equipment.

In its submission, the company urged that no change be made in existing item 440r in so far as it concerns radio for navigation and air traffic communication. In support of this request the company stated:

" Since it is so vital to the Company to utilize the most up-to-date components in the equipment, we suggest that no further barrier be placed in the way of obtaining them."(2)

It would thus appear that the firm was concerned chiefly with the components, of types or sizes not made in Canada, that may now be imported under item 440r.

Collins Radio also urged that tariff item 445d be up-dated to include all electronic equipment. To this end, it proposed the following wording: "Electronic apparatus and parts thereof, n.o.p." For the purpose of administering the item, the company proposed a definition of electronics identical with that proposed by the E.I.A.

General Distributors Ltd. - This firm is the exclusive distributor in Canada of radios imported from the Sony Corporation of Japan. It proposed that the existing items and rates of duty under consideration in this reference be retained. The firm noted in its submission that the radios which it imports from Japan are entered chiefly under item 445d at the most-favoured-nation rate of 20 p.c., and went on to say:

" Since none of the proposals which have been filed on this reference ... recommends any change in this rate for radio receivers, it follows that all concerned in the industry are satisfied with the present rate and that no basis for change exists."(3)

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(1) Transcript, May 9, 1962, p. 340-341.

(2) Same, p. 360-361.

(3) Same, p. 380.



Electronic Industries Association of Japan  
Japan Machinery Exporters' Association - In a joint submission, the two associations urged that, at the least, the present most-favoured-nation rates be maintained for all classes of electronic products. They contended that:-

"... there is no reasonable basis upon which to conclude that the Canadian electronic industry is being seriously injured or is being threatened with serious injury as a result of imports of electronic products from Japan."(1)

British Radio Equipment Manufacturers' Association  
 British Radio Valve Manufacturers' Association  
 Electronic Engineering Association  
 Electronic Valve & Semi-Conductor Manufacturers' Association  
 Radio & Electronic Component Manufacturers' Federation  
Telecommunication Engineering & Manufacturing Association - At the time of the public hearing, the six associations were reported to be representing 80 per cent of the British electronic industry. In their joint submission, the associations proposed the establishment of more than a dozen tariff items providing for the various types of radio apparatus and related equipment; the proposed rates of duty are generally the same as those now levied on such equipment. In support of their proposals, the associations stated:

" They have as their main object a classification reasonably convenient administratively to apply and yet broad enough to avoid the need for revision immediately each new development in electronics appears.

" In the interests of Commonwealth trade it is proposed to maintain the present British Preference. Canada will thus continue to have the benefit of reasonably priced equipment and components from British manufacture."(2)

The representations of the British associations, particularly the proposal for the continuation of the existing margins of preference under the British Preferential Tariff, were supported in writing by The Plessey Company of Canada Limited and Paisley Products of Canada Limited, importers of radio equipment and related products from the United Kingdom.

Aluminum Company of Canada, Limited - This company's interest in Reference 123 was confined chiefly to testing and similar instruments which it uses in its metallurgical operations. The firm was concerned that implementation of some of the proposals before the Board concerning such instruments might have the effect of removing them from

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(1) Transcript, May 9, 1962, p. 485.

(2) Same, p. 396.

the ambit of the 410 series of tariff items, where they are now entered. The company made the following submission:

"... we ask the Board when making recommendations to the Minister for amendments to the tariff items now under review, to so word them as to continue to allow electronic instruments and electronic test apparatus when for use in mining and metallurgical operations, to enter under the 410 series of end use tariff items."(1)

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(1) Transcript, October 4, 1962, p. 1056-1057.





SECTION IIICOMPONENTS, PARTS AND MATERIALSIntroduction

This section deals with components used in the manufacture of radio apparatus and related products, and with the parts and materials used in the manufacture of the components themselves. The principal components which are under consideration are, in approximate order of commercial importance: electron tubes, transistors and other semiconductor devices, transformers, loudspeakers, capacitors and resistors. Certain intermediate products, such as phonograph needles, pick-up cartridges, microphones, tuners and tape transport mechanisms, are also considered, as are certain other products respecting which the Board received specific representations.

Canadian shipments of radio and television components have increased considerably since the war, from less than \$10 million annually in the late 1940's to an estimated \$60 million in recent years; in addition, some of the large equipment manufacturers produce considerable quantities of components for their own use. Electron tubes account for about one-half of the components sold on the Canadian market. Almost all of the tubes are produced by four large integrated companies, namely Canadian General Electric Company Limited, Canadian Westinghouse Company Limited, Philips Electronics Industries Ltd. and RCA Victor Company Ltd. These firms manufacture tubes for their own use as well as for sale to other equipment manufacturers and for the replacement market. Most of the other components sold on the open market are produced by the more than 70 firms which manufacture chiefly components. Most of these firms are relatively small and tend to specialize in the manufacture of one or more of the components; few of them make complete equipment. Canadian shipments of the principal components under review are shown in Appendix B, Table 4; the principal statistics of firms engaged in their manufacture are given in Table 2.

Imports of the components under consideration have paralleled the trend in domestic shipments, having increased from an average of about \$10 million annually in the immediate post-war years to an estimated \$60 million in recent years; about 75 per cent of the imports originate in the United States. As noted earlier, the large integrated companies, with foreign affiliations, account for a significant portion of the imports. Exports do not account for a significant portion of the industry's output, although some components, such as electron tubes, are exported.

The total value of parts and materials used by plants engaged principally in the manufacture of the components under review has ranged from \$10 million to \$20 million in recent years (Appendix B, Table 2). Imports of parts and materials under tariff items 4450,

445p, 445q, 445s and 445u have averaged about \$12 million annually; some parts are also imported under items 445d and 445k, as well as other items in the Customs Tariff more specifically providing for them. It would thus appear that manufacturers of components rely on imports for substantially more than one-half of the materials which they use.

The principal components used in the manufacture of radio apparatus and related products are considered below under separate headings, together with the parts and materials used in their manufacture.

### Electron Tubes

Ever since their development at the turn of the century, electron tubes have formed the backbone of the radio apparatus industry; they perform the essential functions required in radio and television transmission and reception, being used to generate, detect, rectify, amplify or mix the desired audio or video signals. Despite increasing competition from transistors and other semiconductor devices, tubes continue to be used in large numbers; with Canadian sales in recent years averaging about \$25 million, they are by far the most important component considered in this Report, constituting about 40 per cent of Canadian sales of components.

Of the electron tubes currently in use, the vacuum tubes are by far the most common; they are the types used in radio and television receivers and transmitters. In its simplest form, a vacuum tube consists of two electrodes enclosed in a glass tube in which a vacuum has been created. One of the electrodes is called the cathode, or filament; in a radio tube it is either in the form of a thin tungsten wire, not unlike the filament in a light-bulb, or in the form of a bar of oxide-coated metal. The other electrode is called the anode, or plate; it may be a cylinder surrounding the cathode or a plate facing it, and is usually made of iron, nickel or molybdenum. When the tube is in operation, the cathode is heated by electric current which causes it to give off particles of negative electricity, known as electrons; these are immediately attracted to the positively charged anode. It is during this flow of electrons between the two electrodes that the current is changed so that it can perform the particular function required of it. The freeing of electrons from the cathode by the use of heat, known as thermionic emission, is the reason why tubes of this type are sometimes referred to as thermionic tubes, or thermionic valves. The vacuum, from which the tubes derive their more common designation, facilitates the emission of electrons and ensures that the heated filament does not oxidize and burn as it would in the presence of air.

Vacuum tubes are normally classified as receiving tubes on the one hand and high-power tubes on the other; the latter group covers a variety of tubes used in radio and television transmission, and in industrial applications. Vacuum tubes may also be classified according to the functions which they are intended to perform, as amplifiers, rectifiers, convertors, etc.

A special type of vacuum tube which has become increasingly important in recent years is the cathode-ray tube (CRT). The television picture tube is the best known application of a cathode-ray tube;



it is also used in radar equipment, oscilloscopes and other apparatus employing visual displays. The visual display is obtained by focusing a stream of electrons emanating from a heated cathode into a narrow beam and projecting it onto a fluorescent screen. To accomplish this, a cathode-ray tube is equipped with an electron gun, a system of deflection, or beam positioning, and a fluorescent screen, or target. The electron gun comprises the electron-emitting cathode, and one or more control grids and anodes which focus the electrons, or cathode rays, into a beam and accelerate them towards the target. The deflection system consists of two pairs of magnetic deflection coils, or of electro-static deflection plates; one pair is used to move the electron beam horizontally, the other vertically. The screen is usually a thin layer of phosphorous material deposited on the face-plate of an evacuated glass envelope, or bulb.

There are electron tubes other than the thermionic vacuum tubes described above, including among others cold cathode tubes, gas-filled tubes and phototubes. These other tubes are not used in radio and related apparatus to any great extent.

Of the materials used in the manufacture of vacuum tubes, the various metals which form the cathode, anode and the grids are the most important, followed by glass bulbs and glass tubing which form the envelope and the stem. Nickel, nickel alloys and nickel plated iron or steel are the metals most frequently used, although other metals and metal alloys are also used in considerable quantities. A more complete outline of the variety of parts and materials used in the manufacture of tubes can be obtained from existing tariff items 445p, 445q, 445s, 445t and 445u shown in Appendix A.

### Process of Manufacture

The manufacture of a conventional vacuum tube involves at least five basic steps: assembly, or mounting, sealing, evacuating, aging and testing. During the assembly, the various metal parts comprising the cathode, anode and the grids are mounted between two spacers to form what is known as the cage assembly. The spacers are usually punched out of thin sheets of mica and are designed to hold the various parts in precise alignment. After the electrodes have been assembled and connected to the leads in the glass stem which will become part of the tube base, a glass bulb, or envelope, is placed over the cage assembly and is fused to the stem. Air is then withdrawn from the tube by means of vacuum pumps and the tube is heated to force out any residual gases. To facilitate de-gasing, use is made of a special device known as the getter. It consists usually of a magnesium compound mounted within a small ring which forms part of the cage assembly. As the tube is heated, the compound vaporizes and the resulting chemical reaction removes final traces of gas in the tube. After the tube cools off, the vaporized getter condenses on the inside of the glass envelope and forms the familiar silvery film usually seen in vacuum tubes. Following evacuation, the tube is aged. This involves operating the cathode at higher-than-normal temperatures and is designed to bring the cathode to its maximum emission capability and to eliminate defective tubes. The aging may take from several minutes to more than an hour, depending on the type of tube. After aging, the tube is tested to ensure that it meets specifications.



Although automatic mounting machines have been developed, most of the tube assembly continues to be done by hand, chiefly by women. The sealing and exhausting, on the other hand, is done on machines which perform these functions in a series of steps while the tube is being rotated from one position to another. On the average, direct labour accounts for only about 33 per cent of added value, which is about the same ratio as in Canadian manufacturing generally.

### Canadian Market

There are more than a dozen firms in Canada engaged in varying degrees in the manufacture of electron tubes. However, four companies, namely Canadian General Electric Company Limited, Canadian Westinghouse Company Limited, Philips Electronics Industries Ltd. and RCA Victor Company Ltd., account for at least 80 per cent, by value, of the domestic tubes sold on the Canadian market. The four firms also produce tubes for their own use, to be incorporated into equipment which they manufacture. On the basis of values assigned by the companies to the tubes which they use in the manufacture of equipment, captive production appears to account for something in the order of 10 to 15 per cent of the total value of Canadian output of tubes. Most of the remaining firms are engaged chiefly in the re-building of picture tubes. Canadian shipments of electron tubes have increased in value from less than \$10 million in the late 1940's to about \$25 million. The following table shows the distribution of Canadian shipments in recent years among the principal categories; figures for previous years are given in Appendix B, Table 4.

CANADIAN SHIPMENTS OF ELECTRON TUBES, BY PRINCIPAL CATEGORIES  
1959 to 1963  
(All figures in thousands)

<u>Year</u>	<u>Radio and TV</u> <u>Receiving Tubes</u> (a)		<u>Television</u> <u>Picture Tubes</u> (b)		<u>All</u> <u>Other Tubes</u> (c)		<u>TOTAL</u> <u>SHIPMENTS</u>
	No.	\$	No.	\$	No.	\$	\$
1959	15,604	10,916	590	11,745	382	2,697	25,358
1960	13,849	9,701	642	12,077	405	3,011	24,788
1961	13,625	9,690	533	10,496	680	3,953	24,140
1962(d)	16,177	11,175	663	13,521	476	2,728	27,424
1963(d)	14,662	10,601	691	13,258	298	2,035	25,894

(a) Entertainment type only.

(b) Includes re-built tubes.

(c) Includes industrial, military and power tubes.

(d) Preliminary.

Source: DBS Cat. No. 43-205 and 43-004.

Receiving Tubes - Although radio and television receiving tubes accounted in recent years for only about 40 per cent of the total value of Canadian shipments of electron tubes, when imports are included they constitute the largest category of electron tubes sold on the Canadian

market. During the past ten years, the total volume and value of receiving tubes traded in Canada fluctuated between the peak of some 29.4 million units valued at \$21.6 million in 1955 and the low of 22.5 million units valued at \$17.8 million in 1957; in recent years, some 24.5 million units valued at about \$19 million have been traded annually. The following table gives the Board's estimates of the composition of the Canadian supply for receiving tubes in recent years, by source and destination.

ESTIMATED ANNUAL CANADIAN SUPPLY OF RECEIVING TUBES

	Destined for:		<u>TOTAL</u>
	<u>New Equipment</u>	<u>Replacement</u>	
	M i l l i o n s   o f   U n i t s		
Canadian shipments	3.5	11.0	14.5
Imports	<u>5.0</u>	<u>5.0</u>	<u>10.0</u>
TOTAL MARKET	8.5	16.0	24.5
Captive output(a)	<u>2.5</u>	<u>-</u>	<u>2.5</u>
TOTAL SUPPLY	11.0	16.0	27.0

(a) Produced by integrated companies for their own use.

Source: Estimates prepared by the Tariff Board from published data for the years 1960 to 1962.

Thus, on the basis of the above estimates, some 40 per cent of the tubes used annually are destined for installation into new equipment, while the remaining 60 per cent are sold to service or repair establishments or through retail dealers for replacement purposes. At present, television receiving sets represent the most important single use of receiving tubes, accounting on the average for about 60 per cent of total consumption. However, the use of tubes for this as well as other purposes can be expected to decline in the future owing to increased competition from transistors and other semiconductor devices.

A noteworthy feature of the market for receiving tubes is its concentration among relatively few types. For example, a survey<sup>(1)</sup> of the Canadian supply of electron tubes conducted by the Board reveals that although there were more than 1,000 different types of receiving tubes produced and imported during 1962, some 185 types accounted for 90 per cent of the total volume produced and imported; for each of the 185 types the quantity produced and/or imported during 1962 was in excess of 25,000 units.

As the table on the following page indicates, imports have traditionally accounted for a substantial portion of total Canadian

<sup>(1)</sup> A summary of the survey appears in Appendix B, Table 7.

## APPARENT CANADIAN MARKET FOR RECEIVING TUBES

Year	Canadian Shipments (a)	Imports (b)					APPARENT CANADIAN MARKET (c)	Canadian Shipments as Per Cent of Apparent Market p.c.
		U.K.	U.S.	Japan	Other	Total		
		T h o u s a n d s	U n i t s	U n i t s	U n i t s	U n i t s		
1939	2,527	1	1,124	-	-	1,124	3,651	69.2
1947	7,985	1	3,701	-	-	3,703	11,688	68.3
1948	4,041	*	937	-	1	938	4,979	81.2
1949	4,683	2	1,307	-	1	1,310	5,993	78.1
1950	8,182	66	1,694	-	52	1,812	9,994	81.9
1951	9,977	22	2,530	-	23	2,575	12,552	79.5
1952	7,221	22	2,706	-	24	2,752	9,973	72.4
1953	12,803	24	12,335	-	100	12,459	25,262	50.7
1954	11,369	26	6,871	-	316	7,213	18,582	61.2
1955	15,054	19	13,682	-	691	14,392	29,446	51.1
1956	15,778	29	7,954	-	605	8,588	24,366	64.8
1957	16,068	72	5,604	*	733	6,410	22,478	71.5
1958	18,405	179	6,358	213	1,011	7,761	26,166	70.3
1959	15,604	337	5,692	2,205	934	9,168	24,772	63.0
1960	13,849	363	4,740	3,948	1,173	10,224	24,073	57.5
1961	13,625	494	5,658	2,044 (d)	1,050	9,246	22,871	59.6
1962	16,177	1,740	5,016	2,355 (d)	1,384	10,495	26,672	60.7

(a) Prior to 1959 includes receiving tubes for military purposes; in subsequent years those for entertainment only.

(b) s.c. 6166. Includes radio and television transmitting tubes; these are believed to account for a relatively small portion of total volume.

(c) Canadian shipments plus imports.

(d) Subject to a quantitative quota (2.5 million units in 1961, 2.7 million in 1962).

Source: Based on data compiled by DBS, shown in greater detail in Appendix B, Table 4 and in Appendix C, Table 11.



market, their share ranging from less than 20 per cent of total volume in 1950 to just under one-half in 1953; in recent years, the portion of the total Canadian market supplied by imports has averaged about 40 per cent.

The United States has been by far the most important source of imported receiving tubes, especially prior to 1958 when some 95 per cent of the imports originated in that country. In more recent years, there have been increasing importations from Japan, the United Kingdom and the Netherlands, although the United States continues to be by far the most important single supplier. Details of imports are given in Appendix C, Table 11.

To some extent, the imported receiving tubes consist of types which are not manufactured in Canada at the present time. On the other hand, there is evidence that large quantities of tubes are imported which do compete directly; for example, the Board's survey suggests that of the total of 10 million receiving and transmitting tubes actually imported during 1962, at least 4.5 million were of types made in Canada during that year. The extent to which imports from the principal exporting countries are directly competitive with Canadian production is noted in subsequent paragraphs.

Imports of radio and television receiving and transmitting tubes from the United States have in recent years averaged about 5.5 million units valued at about \$6.4 million. Most of these imports consist of types of tubes not made in Canada, although some are identical; for example, the Board's survey indicates that close to one million receiving tubes imported from the United States during the year 1962 were of types produced in Canada during that year.

To a considerable extent, the large importations are by companies which manufacture tubes in Canada and which are affiliates of companies in the United States. According to the survey, of the 5 million radio and television receiving tubes imported from the United States during 1962, at least 3 million, or some 60 per cent, were receiving tubes brought in by firms engaged in the manufacture of tubes. The Board has been informed that among the reasons for the large importations by Canadian tube manufacturers are: the desire of each manufacturer to offer a complete line of tubes to the trade; the need to meet sudden surges in demand which cannot be supplied from scheduled Canadian production; and the need to meet delivery schedules when problems are encountered in the Canadian operation. The speed with which deliveries can be made and the close corporate relationships between firms in Canada and in the United States are some of the other reasons why that country continues to be the preferred source of supply.

The Board has obtained information respecting prices in Canada and in the United States of ten receiving tubes whose combined Canadian production and imports during 1962 was in excess of 400,000 units each, and which together accounted for close to 20 per cent of the total Canadian market for receiving tubes in that year. The following table shows weighted averages of these prices at various levels of trade:

AVERAGE PRICES OF TEN POPULAR RECEIVING TUBES IN  
CANADA AND IN THE UNITED STATES

<u>Level of Sale</u>	<u>United States</u> US \$	<u>Canada</u> \$	<u>Percentage Difference</u> p.c.
Original Equipment			
Manufacturers	.55	.66	+ 20
Distributor	.71	.81	+ 14
Suggested Retail	2.20	2.33	+ 6

Source: Based on the Tariff Board survey and on published price lists in mid-1963.

The differential of 20 per cent between the price to equipment manufacturers in Canada and in the United States is equivalent to the present most-favoured-nation rate of duty applicable to electron tubes under item 445d; it therefore offers no special inducement to import particularly when the rate of exchange and the additional costs of bringing the tubes to Canada are also taken into consideration. This is true to an even greater extent at the distributor level where the differential is only 14 per cent; it is at this level that an independent importer would buy tubes for distribution to dealers in Canada. There is an even narrower differential between the suggested retail prices in the two countries; although the suggested retail prices are not obligatory in either country, they are usually followed.

Imports of radio and television receiving tubes from the United Kingdom have increased considerably in recent years; published statistics show that in 1962, the last full year for which this information is available, they consisted of some 1.7 million tubes valued at about one million dollars. The Board's survey indicates that close to 1.5 million receiving tubes imported from the United Kingdom during 1962 consisted of types manufactured in Canada. On the other hand, there is evidence that some of the North American types of tubes are not manufactured in the United Kingdom at all. For example, of the 22 types of receiving tubes listed in a Canadian manufacturer's inventory guide as being most in demand, 12 are not offered for sale by any of the major Canadian importers of tubes from the United Kingdom and, upon further investigation, were found not to be made there chiefly because they differ in some respect from those used in that country. The prices of Canadian-made tubes to distributors range from 13 per cent below to 24 per cent above the prices of similar tubes imported from the United Kingdom. For ten popular replacement tubes, the prices of Canadian-made tubes were found to be, on a weighted average basis, about 9 per cent higher.

Imports of radio and television tubes from Japan have also increased rapidly in recent years, from none prior to 1957 to some 2.4 million tubes valued at about \$860,000 in 1962; indications are that practically all of the imports consist of receiving tubes. Of the tubes imported during 1962, at least some 1.9 million, or nearly 80 per cent, consisted of types manufactured in Canada. Since 1961, the Japanese Government has been applying quantitative restrictions on radio and television receiving tubes exported to Canada; these have been as



follows: a maximum of 2,500,000 units in 1961, 2,700,000 in 1962 and 2,835,000 in 1963. Certain types of tubes for which Canada relies chiefly on imports are exempt from the quota system. The prices to distributors in Canada of Canadian-made tubes are, on the average, from 33 to 50 per cent higher than those of tubes imported from Japan.

Irrespective of the country of origin, for tubes destined for the replacement market price competition takes place at wholesale level. This is attributable to the fact that at the retail level tubes are usually sold at list prices suggested by Canadian manufacturers and importers; these are usually identical. Differences in the prices at which Canadian manufacturers and importers sell to distributors, therefore, are unlikely to affect the prices to final users. The benefit of low-priced imports thus accrues in the form of greater margins to distributors or retailers, or both, with the consumer in most cases paying the same price, whether purchasing a Canadian-made tube or an imported one.

In summary, imports in recent years have accounted for somewhat less than 40 per cent, by volume, of total Canadian requirements for receiving tubes. However, according to the Board's survey, approximately half of the tubes imported in 1962 appear to have been of types not made in Canada. Most of the imported tubes that compete directly with Canadian production fall within the group of 184 popular tubes which account for 90 per cent of total Canadian requirements for receiving tubes. The imported tubes appear to supply between 25 and 30 per cent of Canadian requirements for these popular types. A substantial portion of the imports of popular tubes are made by companies which also manufacture tubes in Canada.

In 1962, imports of the popular types originated in almost equal proportions in the United Kingdom, Japan and the United States. More than 75 per cent of the popular tubes imported from the United Kingdom and Japan were directly competitive with Canadian production, compared to about one-half of those from the United States.

Television Picture Tubes - With annual shipments exceeding \$13 million. television picture tubes have in recent years accounted for about 48 per cent of the total value of Canadian shipments of electron tubes. Practically all of the market is supplied by Canadian manufacturers, with imports accounting for less than one per cent of total volume. The imports come mostly from the United States, and are brought in by the picture tube manufacturers themselves; to a large extent they consist of types not made in Canada. Three firms, Canadian General Electric Company Limited, Canadian Westinghouse Company Limited and Philips Electronics Industries Ltd., usually account for about 85 per cent of Canadian shipments; all three also manufacture picture tubes for incorporation into television sets which they manufacture.

Other Tubes - This heading provides for all tubes other than radio and television receiving tubes and television picture tubes; it includes, among others, radio and television transmitting tubes, television camera tubes and industrial tubes. The number of tube types encompassed by these other categories is very great; the tubes range in price from less than a dollar to several thousand dollars each. Shipments, according to



published statistics, have ranged between \$10 million in 1956 and less than a million in 1958; in recent years they have averaged about \$3 million, including military receiving tubes (Appendix B, Table 4). Imports cannot be ascertained from published statistics. However, the Board's survey indicates that during 1962 imports of electron tubes other than receiving and picture tubes amounted to at least 1.4 million units, while domestic production came to some 860,000 units; thus, Canada relies on imports for considerably more than one-half of its requirements. There are indications that, owing to the great variety, imports consist chiefly of types not manufactured in Canada; for example, the 1962 imports covered by the survey consisted of some 2,450 tube types, of which only 25 were manufactured in Canada during that year. The United States was the principal foreign supplier, accounting for about 77 per cent of the imports covered by the survey. Owing to the great variety of types and to the difference between the types that are manufactured in Canada and those that are being imported, a comparison of prices would not be very meaningful.

Parts and Materials - On the average, the cost of parts and materials accounts for between 20 and 33 per cent of the total factory cost of receiving tubes, and for between 60 and 70 per cent of the total factory cost of television picture tubes. For the most parts, the materials and parts used in the manufacture of electron tubes in Canada are at present supplied by imports.

Imports in recent years averaged over \$7 million annually; they are shown in Appendix C, Table 12 and 13. The tabulation on the following page gives a rough estimate of the distribution of imports during 1962 among the various materials, and by tariff items. In response to an inquiry by the Board subsequent to the public hearing, a spokesman for Canadian manufacturers of electron tubes, in a letter dated April 29, 1963, gave the following reasons why Canadian requirements for parts and materials used in the manufacture of tubes are supplied almost entirely by imports:

"... the Canadian demand for the specified parts and materials used in the manufacture of electronic tubes is nowhere near sufficient to justify economically their fabrication in Canada. For instance, facilities for the economic manufacture of blown glass bulbs would cost several million dollars and because of the nature of glass which requires continuous processing, would have to be operated round the clock. The output of the smallest practicable facility would satisfy the total annual Canadian demand in less than one week. Even where the overall value of a specific part (such as nickel, nickel alloy, nickel plated parts, coated or not, carbonized or not) appears to be sufficient, examination reveals that the requirement breaks down into numerous small runs of many different shapes as required by various tube types and individual manufacturers' different designs. Furthermore, both tube types and designs are constantly changing so that it is not feasible to extend production runs and stockpile these parts. This all adds up to many very short production runs for which the tooling, change-over and start-up costs are prohibitive.

MATERIALS FOR USE IN THE MANUFACTURE OF ELECTRON TUBES  
 Estimated Break-down of Imports During 1962  
 By Tariff Item and Type of Material

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<u>Tariff</u> <u>Item</u>	<u>Part or Material</u>	<u>Value</u> \$'000	<u>Value</u> \$'000
445p	Ceramic parts	12	
	Copper alloys for welding	1	
	Getter and getter assemblies	39	
	Glass parts	11	
	Metal bulbs and shells and metal headers	34	
	Mica parts	200	
	Mica assemblies	70	
	Wire snubbers, clips and straps	14	
	Wire of molybdenum and molybdenum alloy	130	
	Nickel and nickel alloy tubing, wire, ribbon, screen and strip, coated or not, carbonized or not	164	
	Metal cathodes	166	
	Nickel, nickel alloy, nickel plated parts, coated or not, carbonized or not	652	
	Tungsten and tungsten alloy and zinc wire	77	
	Leads, spuds and welds	246	
	Iron parts designed for sealing to glass	24	
	Hooks and supports	26	
	Base pins	3	
	Wire and strip of silver copper, chrome copper, chrome iron or plated iron	52	
	Top cap assemblies	15	
	Graphite anodes	7	
	Heaters and filaments	<u>25</u>	1,968
445q	Glass bulbs, glass tubing, glass cane	246	
	Molybdenum strip	4	
	Tantalum wire and strip	4	
	Copper tubing, rod and strip	8	
	Iron strip, plated or not	5	
	Metal parts, n.o.p.	<u>30</u>	297
445s	Articles of glass for use in the manu- facture of cathode ray tubes for television receiving sets		4,700
445t	Molybdenum rod and tubing		(a)
445u	Getters and getter assemblies		54
445d	Parts not specifically provided for		<u>450</u>
	TOTAL IMPORTS		7,469

(a) Included under tariff items 445p and 445q.



" Despite these seemingly insurmountable obstacles we have searched diligently for Canadian sources of such parts and materials, but all to no avail. One of our most recent efforts in this regard was to display all such parts and materials at the Ontario Government's Manufacturing Opportunities Show late last year [1962]. We had seven inquiries from interested suppliers but not a single one has followed through with a quotation.

" On top of the factors already mentioned that are operating to discourage the Canadian manufacture of such parts and materials is the growing realization that electronic tube manufacture is declining, due to the inroads of semiconductors. ..."

With the exception of glass bulbs for television picture tubes, the Board received no representations suggesting that imports of parts and materials for use in the manufacture of electron tubes have an adverse effect on Canadian industry.

Glass bulbs, or envelopes, account for about 65 per cent of the material cost and for close to 50 per cent of the total factory cost of television picture tubes. Prior to 1962, all of the glass bulbs used in the manufacture of picture tubes in Canada were supplied by imports; most of these came from the United States, and the remainder from the Netherlands. The bulbs imported from the United States came from Corning Glass Works, of Corning, New York and from Kimble Glass Co., a subsidiary of Owens-Illinois Glass Co., of Toledo, Ohio, and were distributed in Canada by their Canadian subsidiaries. In December, 1961 Corning Glass Works of Canada Ltd. began to assemble the bulbs at its Toronto plant, and in March, 1963 Owens-Illinois of Canada Ltd. commenced also. The two firms import the three separate glass pieces which comprise the bulb, namely the panel, or face-plate, the funnel and the tubing, or neck, from their affiliates in the United States and fuse them together. The two companies between them assemble in Canada all of the basic sizes required in large volume, including the various types of 11, 16, 19 and 23-inch bulbs, but continue to import from their affiliates in the United States those for which the demand is relatively small. The bulbs assembled in Canada are sold to Canadian manufacturers of picture tubes at prices equivalent to those charged by the parent companies in the United States; in addition, the Canadian user pays freight from Corning or Toledo to his plant in Canada, irrespective of whether the bulb is assembled in Canada or manufactured in the United States. The bulbs fused in Canada accounted in 1963 for about 60 per cent of the total Canadian demand for new bulbs, estimated at about 460,000 units. It is understood that most of the new bulbs are intended for use in the manufacture of picture tubes destined for installation in new equipment.

Apart from the bulbs imported by the two Canadian affiliates of manufacturers in the United States, the only other picture tube bulbs being imported are those brought in by Philips Electronics Industries Ltd., of Toronto, from its affiliated company in the Netherlands. The Board has been informed that Philips imports from the Netherlands two basic types of bulbs, namely the 19"-110° and the 23"-110°; other sizes it purchases in Canada. The two types imported from the Netherlands accounted for less than two-thirds of the company's



total annual consumption of picture tube bulbs in 1963, and are expected to remain at approximately the same level in 1964. There is evidence that one of the types, namely the 19"-1100, is not available from the two Canadian suppliers.

### Existing Tariff Treatment

All electron tubes, including television picture tubes, destined for use in radio and related apparatus qualify for entry under tariff item 445d, free of duty under the British Preferential Tariff and at a rate of 20 p.c. under the Most-Favoured-Nation Tariff; most of the imported radio and television tubes are, in fact, entered under this item. Radio and television tubes can also be entered under tariff items 440g(1) (marine equipment), 440r (airborne radio equipment) and 696 (scientific equipment), providing they are for the end-uses specified therein; published statistics suggest that imports of radio and television receiving and transmitting tubes under these items are not very great. Electron tubes for other than radio or television applications, such as industrial tubes, are entered mostly under tariff item 445k, at rates of 15 p.c., B.P. and  $22\frac{1}{2}$  p.c., M.F.N., although some may also be classified under items providing for the equipment for which they are destined, such as items 445c (telephone and telegraph equipment) or 445n (testing equipment, analogue computers). Information respecting imports of tubes under these items is not available. However, a survey conducted by the Board indicates that during the year 1962 imports of electron tubes other than receiving and picture tubes amounted to at least 1.4 million units. Some of these are probably entered under these other items; as previously noted, they consist chiefly of types not made in Canada.

Tariff items 445p, 445q, 445s, 445t and 445u specifically provide for practically all of the parts and materials used in the manufacture of electron tubes. Importations under items 445p and 445q are restricted to those made by manufacturers of radio tubes, while items 445s, 445t and 445u are not so restricted; however, the last three are, at present, only temporary items. All five items relating to parts and materials for use in the manufacture of tubes now provide duty-free entry under both the British Preferential and the Most-Favoured-Nation Tariffs; they are quoted in full in Appendix A.

With parts and materials accounting for between 20 and 33 per cent of factory cost of receiving tubes and entitled to duty-free entry, the effective protection on the manufacture of receiving tubes in Canada is significantly higher than the 20 p.c. most-favoured-nation duty would suggest. This is true to an even greater extent of television picture tubes, where parts and materials account for 60 to 70 per cent of factory cost.

### Proposals and Other Representations

The Electronic Industries Association of Canada (E.I.A.) proposed the establishment of a tariff item providing for all electron tubes, irrespective of their usage. The proposed wording and rates are as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
964	Electron tubes and parts thereof, n.o.p.	15 p.c.	20 p.c.	30 p.c.

The principal effect of this proposal would be to impose a duty of 15 p.c. on radio and television tubes imported from countries entitled to British preferential treatment, which are now entered duty-free under item 445d. On tubes other than those for use in radio and related apparatus, which are now entered mostly under tariff item 445k, there would be a slight reduction in the most-favoured-nation rate, from the 22½ p.c. currently applicable.

In support of the E.I.A. proposal to impose a duty under the British Preferential Tariff a spokesman for the industry stated that although imports from United Kingdom were smaller than those from other countries, particularly in the United States, a larger proportion of them was directly competitive with Canadian production.<sup>(1)</sup> When asked why no increase had been requested in the rate under the Most-Favoured-Nation Tariff, under which most of the imports are entered, another spokesman for the E.I.A. stated: "... the reason we haven't asked for a higher most-favoured-nation rate is because we don't believe the possibility of getting it is at all likely."<sup>(2)</sup>

With respect to parts and materials for use in the manufacture of tubes, the E.I.A. proposed that existing items 445p, 445q, 445s, 445t and 445u be retained without change and that the expiry dates applicable to the last three items be deleted so as to make them permanent. When asked about the possibility of duplication between these items and the proposed item for electron tubes, which also includes a provision for parts, the spokesman for the industry stated that the latter was merely intended to cover parts which do not qualify for entry under the 445 series of items and which the industry felt ought to be protected to the same extent as the finished tubes.<sup>(3)</sup>

Corning Glass Works of Canada Ltd., which at the time of the public hearing was the only firm engaged in the assembly of picture tube bulbs in Canada, proposed that a duty of 15 p.c. under both the British Preferential and the Most-Favoured-Nation Tariffs be levied on those types of picture tube bulbs which are being assembled in Canada, with continued duty-free entry of those that are not. The firm also advocated continued duty-free entry of glass parts for use in the manufacture of glass bulbs. At present, both the bulbs and the glass parts for use in their manufacture are entitled to duty-free entry under temporary tariff item 445s. Thus, the effect of the company's proposal would be to impose a duty of 15 p.c. on types of bulbs assembled in Canada. In support of its proposal, the company stated:

"... this is a very young and not yet firmly established enterprise. We feel the need of a measure of security against the competition of bulbs which are completely manufactured outside of Canada, particularly those which may be fabricated in

(1) Transcript, October 3, 1962, p. 797.

(2) Same, p. 799.

(3) Same, p. 816-817.



a country where wages and living conditions are substantially below those which prevail here."(1)

It will be recalled that the Netherlands is the only country, other than the United States, from which bulbs for television picture tubes are being imported at present.

Specific opposition to the proposed changes in the tariff treatment of electron tubes came from Philips Electronics Industries Ltd., Canadian Importers & Traders Association Inc. and the Japanese interests. In addition, Philips also opposed imposition of duties on bulbs for television picture tubes; it would be the company most likely to be adversely affected by this proposal.

Philips Electronics Industries Ltd., which manufactures electron tubes including picture tubes, in Canada and also imports tubes from affiliated companies in the United Kingdom and the Netherlands, based its opposition on the following grounds:

" We make a special point ... with respect to electronic tubes and semi-conductors ... We contend that in respect of these products, there is no substantial injury to Canadian manufacturers. A duty rate of 15 per cent would simply add to the cost of Canadian finished products in which such tubes and semi-conductors were incorporated, and would only serve to divert further purchases to countries now supplying such products in volumes which are multiples of the quantities from Britain."(2)

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"... We have within the past few years exported electronic tubes to Britain and hope to see unimpaired our opportunity of continuing to do so, since we are striving to build up our export trade."(3)

The company also voiced concern about the proposed imposition of a 15 p.c. duty on glass bulbs for use in the manufacture of television picture tubes. Philips imports certain types of bulbs from its affiliate in the Netherlands.

Canadian Importers & Traders Association Inc. advocated the continuation of the present treatment of electron tubes and, particularly, the continuation of duty-free entry under the British Preferential Tariff. Most of the evidence adduced in support of the Association's stand dealt with special types of tubes, particularly television camera tubes and high power transmitting tubes, which are not manufactured in Canada at present.(4)

(1) Transcript, October 4, 1962, p. 985.

(2) Same, October 3, 1962, p. 862-863.

(3) Same, May 8, 1962, p. 222.

(4) Same, October 3, 1962, p. 889-897.



In their joint submission, Electronic Industries Association of Japan and Japan Machinery Exporters Association claimed that as only 38 per cent of the Canadian tube industry's value of shipments consists of radio and TV receiving tubes, the industry can claim no competitive impact from Japan with respect to 62 per cent of its total output. (1)  
The submission goes on to say:

"... On balance, the conclusion appears well founded that the Canadian radio and television segment benefitted from the use of low-cost receiving tubes particularly at a time when television and traditional home and portable set demand had levelled off and a price reduction was apparently needed to spur and sustain the market." (2)

### Transistors and Other Semiconductor Devices

Since the discovery of the transistor in 1948, semiconductor devices have been rapidly displacing electron tubes in many applications. The devices perform, essentially, the same functions as electron tubes, but are particularly suited for certain applications because of their smaller size, lower power requirements, longer service life, and instantaneous operation. Owing to their relatively high cost, semiconductor devices were for many years confined chiefly to uses where their particular characteristics were most advantageous, as in military or space applications or in portable equipment. However, with a trend towards lower prices in recent years, transistors and other semiconductor devices have been finding increasing uses in more conventional types of equipment as well; for example, most of the car radios sold in Canada during 1963 were fully or semi-transistorized and announcements have been made of the manufacture in Canada of television sets and stereophonic high-fidelity combinations embodying semiconductor devices. There is little doubt that this trend will continue and it may be that ultimately semiconductor devices will replace electron tubes entirely.

As their generic name implies, the devices under discussion are made of semiconductive materials, namely those whose electrical conductivity lies within the range between such conductors as the metals, and non-conductors, or insulators, such as glass or rubber. Germanium and silicon are the materials that have been chiefly used in the manufacture of semiconductor devices. By introducing carefully controlled quantities of other materials, referred to as "impurities", into a semiconductor, its polarity can be made either positive or negative. A semiconductor device combines at least one positive and one negative area, frequently more. It is during the flow of electrons between the areas of different polarity, analogous to the flow of electrons between the cathode and the anode of an electron tube, that the current is endowed with the particular characteristic required. The semiconductive material is usually hermetically sealed in a metal or glass case, or is encapsulated in epoxy resin. Provision is made for wire leads or pins by means of which electric current enters and leaves the device; in addition, some devices, such as power transistors, often have metal fins to help radiate heat and are equipped with flanges or threaded studs by means of which they can be fastened to the chassis.

(1) Transcript, October 4, 1962, p. 1021-1022.

(2) Same, p. 1022-1023.

Transistors are the oldest and best known of all semiconductor devices, having been popularized through their extensive use in portable radios and other consumer products. There are several other categories of semiconductor devices, which are usually designated by reference to their composition or function as, for example, germanium diodes and silicon rectifiers. In addition, there is a special type of semiconductor device, known as the phototransistor or photoelectric cell, which derives its designation from the fact that it is sensitive to light; its principal uses are in control, relay and switching applications. The variety of types encompassed by the various categories of semiconductor devices is at least as great as that of electron tubes and is growing continuously as new devices are developed. The semiconductor devices offered for sale in Canada range in price from less than a dollar to more than one hundred dollars each.

As already noted, germanium and silicon have been the principal materials used in the manufacture of semiconductor devices; germanium has been the more important of the two for many years, but silicon is expected to predominate during the 1960's. The materials used in the manufacture of semiconductor devices must be extremely pure; germanium used for this purpose, for example, has only one foreign atom to each billion germanium atoms. The extreme purification is necessary so that the semiconductor can have exactly controlled quantities of impurities added to it in order to obtain the desired polarity. Among the impurities used are, indium, antimony, gallium and boron chloride. Some of the other materials and parts used in the manufacture of semiconductor devices include wire used for leads, and metal and glass cases used to house the semiconductive materials. The relationship which the cost of parts and materials bears to the total factory cost of semiconductor devices varies from less than 10 per cent to as much as 80 per cent, depending on the type of device and the manufacturer; a weighted average for a number of representative devices produced by several Canadian manufacturers shows parts and materials to account for about 50 per cent of the total factory cost.

### Process of Manufacture

The manufacturing process consists essentially of the introduction of carefully controlled amounts of impurities into pure semiconductive materials in order to give them the required polarity, and of forming "junctions" of areas with opposite polarities. The principal processes currently in use for this purpose are alloying and diffusion. Alloying involves the melting into a slice, or wafer, of semiconductive material with a certain polarity a small quantity of chemical impurity which upon fusing with the semiconductor forms an area of opposite polarity; the result is a junction of two areas with opposite polarities. Two junctions may be formed simultaneously on opposite sides of a semiconductor wafer. The diffusion process involves the introduction of impurity, usually in gaseous form, into a semiconductor by means of random movement of impurity atoms placed on the surface of a semiconductor wafer. Although the process takes place at a relatively high temperature, there is no melting as in the case of the alloying process. Although the alloying and diffusion processes are the principal ones used in Canada at the present time, it is understood that other processes have been developed and are coming into use which, before long, may supersede those that have been described.



Once the desired junctions have been formed, connecting leads are attached to them by means of soldering or thermal-compression bonding. The semiconductor is then packaged in a metal or glass case, which provides a hermetic seal similar to the vacuum enclosure used for electron tubes.

Owing to the need to minimize contamination of the semi-conductive materials, clean-rooms or specially designed equipment, such as inert-atmosphere dry boxes, are frequently used in the manufacture of semiconductor devices. Moreover, owing to the very small size of these devices, much of the assembly has to be done under microscopes or other magnifying devices. As in the case of electron tubes, female labour is chiefly used for this very exacting work. On the average, direct labour accounts for about 30 per cent of the value added by the manufacturing process.

### Canadian Market

The Canadian market for semiconductor devices has been increasing rapidly in recent years and by 1962 had exceeded \$7 million, of which just under \$2 million was supplied by domestic manufacturers. In addition, all of the principal manufacturers of semiconductor devices also produce substantial quantities for their own use; the commercial value of such captive output is estimated to have been about \$1.5 million during 1962. As in the case of electron tubes, much of the output originates with the large integrated companies, including Canadian General Electric Company Limited, Northern Electric Company Limited, Philips Electronics Industries Ltd. and RCA Victor Company Ltd. There are about half a dozen other firms which manufacture semiconductor devices; most of these produce specialized types of devices, such as photoelectric cells. On the whole, Canadian manufacture of transistors and other semiconductor devices tends to be confined to a relatively few types required in large volumes. The table below shows Canadian shipments and captive use of semiconductor devices, while the table on the following page gives imports by principal countries of origin.

CANADIAN SHIPMENTS AND CAPTIVE USE OF SEMICONDUCTOR DEVICES  
1959 to 1962

<u>Year</u>	<u>S h i p m e n t s</u>		<u>Captive Use</u>	<u>TOTAL</u>
	\$'000	No. '000	No. '000	No. '000
1959	552	838	347	1,185
1960	709	1,052	509	1,561
1961	890	1,823	1,033	2,856
1962	1,698	3,171	2,989	6,160

Source: The Tariff Board. Based on a survey of principal manufacturers.

A comparison of the figures of shipments and imports shows the latter to have been supplying about 80 per cent, by value, of the non-captive market for semiconductor devices. However, the competitive effect of these imports has been considerably less, owing to the fact



IMPORTS OF SEMICONDUCTOR DEVICES

<u>Source</u>	<u>Year</u>	<u>Transistors</u>		<u>Other Semi-conductor Devices<sup>(a)</sup></u> \$'000	<u>TOTAL SEMI- CONDUCTOR DEVICES</u> \$'000
		<u>No. '000</u>	<u>\$'000</u>		
TOTAL IMPORTS	1960	732	1,498	1,986	3,484
	1961	1,269	2,451	2,230	4,681
	1962	2,069	3,156	3,753	6,909
	1963	3,184	2,836	3,444	6,280
United Kingdom	1960	2	4	46	50
	1961	29	36	65	101
	1962	160	174	74	248
	1963	58	60	46	106
United States	1960	595	1,419	1,889	3,308
	1961	1,007	2,333	2,032	4,365
	1962	1,448	2,846	3,457	6,303
	1963	2,066	2,519	3,156	5,675
Netherlands	1960	68	39	36	75
	1961	229	79	97	176
	1962	429	124	172	296
	1963	753	194	201	395
All other	1960	67	36	15	51
	1961	4	3	36	39
	1962	32	12	50	62
	1963	307	63	41	104

(a) Includes parts for use in the manufacture of semiconductor devices; these are believed to be valued at less than \$500,000 annually.

Source: Based on data compiled by DBS, shown in greater detail in Appendix C, Tables 14 and 15.

that a substantial portion consists of types not made in Canada and is brought in by firms which themselves manufacture semiconductor devices in Canada; there is also the fact that a substantial portion of total Canadian requirements is supplied from captive output. The two tables also show that Canadian shipments and production for captive use together have increased somewhat faster than have the imports. These production and import trends are not altogether unusual for products which had been first developed abroad and subsequently produced in Canada.

The United States has been by far the most important source of imports accounting, on the average, for more than 90 per cent of the total value of imported semiconductor devices. The imports from the United States include a great variety of types, many of which are not manufactured in Canada. However, the Board has obtained price information for a limited number of transistors and other semiconductor devices in which Canadian manufacturers claimed to be facing import competition from the United States; this showed factory prices to equipment manufacturers of the Canadian-made devices to be from 11 to 14 per cent above those quoted to equipment manufacturers in the United States. At the present rate of exchange and allowing for transportation cost, most of the differential disappears.

There is but little doubt that owing to the great variety of types, the small size of the Canadian market and the rapid pace of technological development, Canada will in the foreseeable future continue to rely on imports for a substantial portion of its requirements for semiconductor devices, with Canadian production limited mostly to those types which are required in relatively large volumes.

Parts and Materials - The total value of parts and materials used in the manufacture of semiconductor devices is estimated to have been about \$850,000 during the year 1962.<sup>(1)</sup> Of this, some \$325,000<sup>(2)</sup> consisted of the basic materials, with the remainder consisting of parts, such as the metal or glass cases for packaging semiconductors. Of the materials, only about 20 per cent, or some \$65,000-worth,<sup>(2)</sup> is believed to have been obtained in Canada; indium and a gold-antimony alloy are among the materials available from domestic sources. The basic semiconductors, namely silicon and germanium, are apparently not available in Canada in the degree of purity required for the manufacture of semiconductor devices. However, semiconductor junctions, made by introducing an impurity into the basic semiconductive material or by combining semiconductors of opposite polarity, are formed in Canada by some manufacturers of semiconductor devices, but are imported by others. The Board was informed that semiconductor junctions are almost indistinguishable in appearance from the pure semiconductive material, that they tend to be highly specialized in use and are not ordinarily traded between manufacturers, although some firms in Canada do import them from affiliated companies abroad. Alloying and diffusion are the principal processes used in Canada at present to form semiconductor junctions; it is understood that other processes are constantly being developed and brought into use.

The parts, which in 1962 had an estimated value of about \$525,000, are partly obtained in Canada and partly imported, with the

(1) Estimate prepared by the Tariff Board.

(2) Estimate prepared by the Electronic Industries Association of Canada.

ratio of imports to domestic purchases likely to vary from year to year. Among the principal parts that are available in Canada are certain types of metal, glass or metal-to-glass cases for packaging semiconductors, and washers and spacers for mounting purposes; the types that are available are generally limited to those required in relatively large volume. There is no doubt that with the rapid pace of technology Canadian manufacturers of semiconductor devices will have to continue to import parts which have not yet become available from Canadian manufacture, and those for which the required volume does not justify production.

### Existing Tariff Treatment

Transistors and other semiconductor devices are at present classified as follows:

<u>When for use in:</u>	<u>Item No.</u>	<u>Rates of Duty</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Radio, television and related equipment	445d	Free	20 p.c.	30 p.c.
Airborne radio equipment	440r	Free	Free	27½ p.c.
Shipborne equipment	440g(1)	Free	Free	Free
Other electrical equipment	445k	15 p.c.	22½ p.c.	30 p.c.

For full wording of the relevant tariff items see Appendix A.

Import statistics suggest that close to one-half of the imports from the United States are entered under the duty-free items, while the remainder is classified chiefly under tariff item 445d, as are most of the imports from other countries.

Materials for use in the manufacture of semiconductor devices at present qualify for entry under temporary item 445v, duty-free under both the British Preferential and the Most-Favoured-Nation Tariffs. Parts are entered under the same item as would apply to the semiconductor device for which they are destined, although prior to February 1, 1961 they were included with materials in tariff item 445v.

### Proposals and Other Representations

The Electronic Industries Association of Canada (E.I.A.) proposed the establishment of the following tariff item which would provide for transistors and other semiconductor devices. The reference to parts in the proposed item apparently is intended to cover parts imported for replacement purposes, since parts used in manufacture are covered in a separate proposal.



<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
965	Transistors and semi-conductors and parts thereof, n.o.p.	15 p.c.	20 p.c.	30 p.c.

The principal change resulting from the proposal would be the imposition of a duty of 15 p.c. under the British Preferential Tariff on semiconductor devices destined for radio and related applications, which are now entered duty-free under tariff item 445d; imports of semiconductor devices from countries entitled to British preference have been valued at less than \$250,000 in recent years, all from the United Kingdom. The proposal would also result in a slight reduction in the most-favoured-nation rate on devices now entered under tariff item 445k; imports under this item do not appear to be significant. The inclusion of the phrase "n.o.p." in the proposed item would presumably permit continued entry of semiconductor devices under end-use items such as 440r or 440g(1). As far as the provision for parts is concerned, the Board has been informed that importation of parts for replacement purposes is extremely unlikely as semiconductor devices are not usually subject to break-down and, if so, are replaced in their entirety.

Most of the parts are used directly in the manufacture of semiconductor devices. For these, the E.I.A. proposed the establishment of the following item:

<u>Proposed Wording</u>	<u>Proposed Rates</u>		
	<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Parts for use in the manufacture of semiconductor devices and parts therefor:			
(a) When of a class or kind made in Canada	5 p.c.	7½ p.c.	30 p.c.
(b) When of a class or kind not made in Canada	Free	Free	30 p.c.

In so far as the parts are now dutiable at the same rates as the devices for which they are destined, the proposal would result in substantial reductions in duties on parts deemed to be made in Canada and in a complete removal of duties on those that are not. As already noted, some of the parts used in the manufacture of semiconductor devices are made in Canada, while others have to be imported.

As far as materials for use in the manufacture of semiconductor devices are concerned, the E.I.A. proposed that the provision embodied in the present temporary item 445v be made permanent. This item now provides duty-free entry under both the British Preferential and the Most-Favoured-Nation Tariffs for all such materials; imports supply most of Canadian requirements.

With respect to the proposed treatment of parts and materials for use in the manufacture of the semiconductor devices, a spokesman for the E.I.A., in a letter dated April 29, 1963, informed the Board as follows:

" In general, the state of the art in the manufacture of semiconductors is changing so rapidly that it is difficult to keep up with ....

" The same factors that have barred economical manufacture of tube parts and materials in Canada are likely to operate in the semiconductor field as well. Semiconductor devices, like electronic tubes, are highly susceptible to even the slightest contamination and a few firms specializing in such fields as the preparation of ultra-pure silicon crystals are tending to take over this phase of the work from the semiconductor device manufacturers. The low cost stemming from their concentrated high volume will make it exceedingly difficult for a Canadian manufacturer to compete.

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" Under these circumstances, the provision at this time of duty protection for Canadian manufacture of semiconductor parts or materials appears questionable as it seriously hampers Canadian manufacture of semiconductor devices without yielding any significant Canadian fabrication of the parts and materials going into such devices."

The only other representation dealing specifically with semiconductor devices and parts and materials for their manufacture was made by Syntron (Canada) Limited. The firm makes selenium and silicon rectifiers, of which it claims to be the largest Canadian manufacturer. In its written submission, the company requested duty-free entry of "materials for use in the manufacture of semiconductor devices and parts therefor". In support of its request, Syntron (Canada) Limited stated:

" We feel most strongly that the establishment of a duty on the importation of the materials would be sufficient to curtail any further expansion of facilities and investment in research and development." (1)

### Transformers

Transformers are devices used to increase or decrease the voltage of an electrical current. They are used wherever electrical power is employed and range in size and capacity from the very large ones commonly seen in populated areas to the miniature types used in transistor or printed circuit applications utilizing very low voltages. This Report is concerned only with those transformers which are used in the radio and related apparatus under review in Reference 123.

A transformer consists essentially of two or more unconnected coils or wire wound around a magnetic core; when electric current is led through one of the coils, current of higher or lower voltage is magnetically induced in the other coil. The difference in voltage between the two coils depends, for the most part, on the ratio of the number of turns in each coil. If, for example, the coil through which the current

(1) Transcript, October 4, 1962, p. 1038.



is first led, known as the primary coil, has fewer turns than the secondary coil, say in the ratio of one to ten, the voltage in the secondary coil is stepped up ten times that of the primary coil; if the number of turns in the primary coil is greater, the voltage in the secondary is stepped down proportionately. In types of transformers used in radio applications, the core is either a stack of very thin sections, or laminations, of specially alloyed steel, or a rod or tube made of powdered iron or ferrite material, or simply a hollow tube of insulating material. The core with the coils wound around it is enclosed in a metal frame, a metal can or, in the case of small transformers for transistor or printed circuit applications, the core is encapsulated in epoxy resin.

Depending on the type of core, transformers used in radio and related applications are referred to as laminated core, powdered iron core, ferrite core or air core transformers; this is the classification used by the Dominion Bureau of Statistics in reporting Canadian shipments (see Appendix B, Table 4). In addition, transformers may also be classified on the basis of a range of frequencies at which they can be efficiently applied as audio, intermediate-frequency, and radio-frequency transformers, and on the basis of their principal function as, for example, output, input, power, or modulation transformers. Radio receiving sets and phonographs normally have an output transformer, and may also have a power transformer. Television receiving sets usually have at least three output transformers and may also have several other transformers. Most transformers are destined for use in original equipment and are produced to equipment manufacturers' specifications, with prices varying widely depending on quantities and other considerations; in recent years, the unit value of Canadian shipments of radio and television transformers has averaged about 65¢. Certain standard types of transformers that are offered for sale to the replacement market range in factory price from about \$1.00 for an audio output transformer to over \$15 for a television power transformer; obviously, these account for a very small portion of Canadian shipments.

The principal materials used in the manufacture of transformers include wire, paper, aluminum foil, varnishes, waxes and resins. Among the principal parts are the paper core tubes or plastic bobbins on which the coils are wound, steel laminations which form the core of laminated transformers, and various types of metal housings, including channel frames, horizontal and vertical covers, shields and cans. A survey conducted by the Board revealed that the relationship which the cost of parts and materials bears to the total factory cost of transformers used in radio applications varies between 35 and 75 per cent, depending on type; a weighted average for a wide range of transformers produced by several Canadian manufacturers is about 60 per cent.

### Process of Manufacture

The manufacture of transformers consists essentially of winding magnetic wire into coils containing the required number of turns. For powdered iron, ferrite or air core transformers, the coils are usually wound directly on the tubular core forms. For laminated core transformers, the wire is first wound on a paper tube, known as the core tube, which is then placed over the middle arm of a stack of E-shaped laminations and is held in place by I-shaped laminations which complete the core assembly. For smaller transformers, plastic bobbins



may be used, instead of paper core tubes. The assembled core is then placed into a metal housing or, in the case of laminated transformers, into a frame, known as the channel frame, or between two metal covers which are attached together by means of screws extending through the laminations holding them securely in place. Laminated transformers are usually impregnated with wax or polyester resin. The manufacture of transformers does not require, on the whole, much equipment. Labour is an important element of cost, with direct labour accounting, on the average, for about 65 per cent of value added.

### Canadian Market

There are about a dozen firms in Canada which manufacture and sell transformers for use in radio, television and related apparatus; most of these are relatively small and do not, as a rule, manufacture complete equipment themselves, although some also make components other than transformers. In addition, five of the large equipment manufacturers make transformers for their own use; with one exception, they do not usually offer them for sale to others. In recent years, Canadian shipments of transformers for radio and television applications, including all of the output of the one integrated manufacturer who sells to others, have averaged about \$3.8 million; they are shown in greater detail in the table below. The captive output of the other four integrated companies is estimated to have a value of some one million dollars annually.

CANADIAN SHIPMENTS OF RADIO AND TV TRANSFORMERS  
1954 to 1961

Year	Laminated Core		Powdered Iron & Ferrite Core		Air Core		TOTAL	
	No.	\$	No.	\$	No.	\$	No.	\$
	T	h	o	u	s	a	n	d
1954	1,580	2,153	781	464	348	434	2,709	3,051
1955	2,158	2,738	5,850	2,387	935	296	8,943	5,421
1956	2,065	2,587	4,070	2,181	2,115	743	8,250	5,511
1957	1,900	2,059	2,874	1,381	1,188	182	5,962	3,622
1958	2,242	2,307	4,198	1,715	588	239	7,028	4,261
1959	2,147	2,284	4,653	1,520	1,230	289	8,030	4,093
1960	2,371	2,162	2,488	1,417	489	93	5,348	3,672
1961	2,730	2,353	1,528	991	(a)	(a)	4,258	3,344

(a) Included under "Powdered Iron & Ferrite Core".

Source: DBS Cat. No. 43-201 and 43-207 (1960-61).

Imports of transformers are included in s.c. 6165 (Appendix C, Table 16), which shows an average of \$7.8 million entered annually, mostly from the United States. However, this class includes transformers of all types and for all applications, as well as parts for use in the manufacture of transformers. Estimates prepared for the Board by Canadian manufacturers suggest that imports of complete transformers

for radio, television and related applications are valued at between \$1.5 million and \$2 million, or less than 25 per cent of the value reported under s.c. 6165.

Thus, the Canadian supply of radio and TV transformers in recent years appears to have been valued at about \$6.8 million, of which \$3.8 million has been supplied from Canadian shipments, \$1 million from captive output and some \$2 million, or 30 per cent, by imports.

There is no evidence that imports have been a source of difficulty for Canadian manufacturers under the existing levels of protection of 15 p.c., B.P. and 22½ p.c., M.F.N. During the public hearing, for example, the spokesman for Canadian manufacturers of radio transformers made the following statement concerning imports:

"... they have not been heavy enough that we are complaining about the rates of duty being too low. We have actually, as you see, allowed the rate of duty to come down in line with the other components. We are dropping the M.F.N. rate by 2½ per cent. I think we have been quite satisfied with the way it has been, so none of us have been hurt substantially by imports, or we would not do this." (1)

Similar views were also expressed by Canadian manufacturers individually in response to inquiries from the Board subsequent to the public hearing. Several did, however, refer to increasing importations from Japan of certain standard type of transformers used chiefly in phonographs.

With respect to imports from Japan, published statistics show an increase in recent years, from just under \$9,000 in 1959 to about \$64,000 in 1963; however, even if all the imports from Japan during 1963 consisted of transformers for radio and related applications they would still account for only about three per cent of estimated total imports and for under one per cent of estimated total Canadian supply of such transformers. The relatively small imports from Japan reflect, at least in part, the fact that most of the radio and television transformers are produced to manufacturers' individual specifications and vary widely in design.

The Board has obtained information respecting prices in Canada and in the United States of a representative type in each of the principal categories of transformers used in radio and television applications. This showed the factory price to equipment manufacturers of the Canadian-made transformers to be anywhere from 7½ per cent to 34 per cent higher than that quoted to equipment manufacturers in the United States, with an average differential of just under 20 per cent. The exchange rate and the additional costs involved in landing the imported product in Canada would tend to reduce the average differential by at least one-half. From this it would appear that existing duties indeed offer Canadian manufacturers more than adequate protection against imports from the United States, where most of the imported transformers originate.

Parts and Materials - On the basis of the value of materials used by the principal manufacturers, the Board estimates the total Canadian

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(1) Transcript, October 1, 1962, p. 616.



consumption of parts and materials used in the manufacture of radio and television transformers, including those for captive use, at about \$2.2 million in recent years; of this, about 30 per cent, or some \$660,000-worth appears to have been supplied by imports. Among the parts that are being chiefly imported are certain types of laminations, including all keeper laminations; bobbins; channel frames; metal housings, including drawn cans, lids and shields; mounting brackets; and certain types of coil forms, bases and terminals for air, powdered iron or ferrite core transformers. Most of the materials are understood to be obtained in Canada, with certain types of kraft tissue, cellulose acetate and polyester film among the principal exceptions.

#### Existing Tariff Treatment

Transformers for radio, television and related applications, as well as for any other uses, are at present classified under tariff item 445f:

<u>Tariff</u> <u>Item No.</u>	<u>Present Wording</u>	<u>Present Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
445f	Electric dynamos or generators and transformers, and complete parts thereof, n.o.p.	15 p.c.	22½ p.c.	37½ p.c.

Although this item was not specifically mentioned in the Minister's letter of reference, the Board considers it to be relevant to an adequate inquiry in so far as - and to that extent only - it now provides for transformers used in the radio and related apparatus which is under review in Reference 123.

The parts used in the manufacture of transformers are at present also entered mostly under tariff item 445f, although some, such as high frequency coil forms and tubing of less than one inch in diameter and high frequency iron cores, qualify for duty-free entry under item 445o(1). Imported materials are classified mostly under tariff items normally applicable to the particular material, such as item 272b (waxes), 351 (wire) or 901 (synthetic resins). A known exception is acid-free kraft tissue which qualifies for duty-free entry under tariff item 445o(1).

#### Proposals and Other Representations

The Electronic Industries Association of Canada (E.I.A.) proposed the establishment of the following tariff items providing for transformers for use in the equipment covered by E.I.A. proposed items 925 and 926 (for full wording of these items see pages 54 and 55):



<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
927	Transformers and inductors with laminated iron cores; for use in the goods enumerated in <u>[E.I.A.]</u> tariff items 925 and 926	15 p.c.	20 p.c.	30 p.c.
930(6)	Transformers using other than laminated iron cores  ... when for use in the manufacture of goods enumerated in <u>[E.I.A.]</u> tariff items 925 and 926	15 p.c.	20 p.c.	30 p.c.

Thus, the proposals contemplate the establishment of two separate provisions, one for transformers with laminated cores and the other for transformers with other than laminated cores, such as air or ferrite cores, with identical rates of duty for both. The two separate provisions were justified on the grounds that the industry was divided along these lines, with manufacturers of laminated core transformers not normally making the other types, and vice versa.<sup>(1)</sup> However, there are some manufacturers of laminated transformers who make the other types as well. The proposed most-favoured-nation rate of duty represents a reduction of  $2\frac{1}{2}$  percentage points from that now applicable to such transformers under tariff item 445f, with no change in the British preferential rate; as noted earlier, most of the imported transformers for radio and related applications originate in the United States and, consequently, are entitled to most-favoured-nation treatment. The E.I.A.'s proposed item 927 also provides for inductors with laminated iron cores; these are considered separately under the heading "Miscellaneous Products" later in this section.

Most of the parts and materials used in the manufacture of transformers would under the E.I.A. proposal enter under the following provisions:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
927a	Parts for use in the manufacture of the goods enumerated in <u>[E.I.A.]</u> tariff item 927, including bobbins, coil forms, core tubes, end collars, coil shields, non-metallic bushings, insulators	10 p.c.	$17\frac{1}{2}$ p.c.	30 p.c.
927b	Materials, n.o.p. for use in the manufacture of the goods enumerated in <u>[E.I.A.]</u> tariff items 927 and 927a	5 p.c.	$12\frac{1}{2}$ p.c.	30 p.c.

(1) Transcript, October 1, 1962, p. 609.

E.I.A. Item No.	Proposed Wording	Proposed Rates		
		B.P.	M.F.N.	Gen.
930a	Parts, n.o.p., for use in the manufacture of goods enumerated in <u>E.I.A.</u> tariff item 930	7½ p.c.	12½ p.c.	30 p.c.
930b	Materials, n.o.p., for use in the manufacture of goods enumerated in <u>E.I.A.</u> tariff items 930 and 930a	5 p.c.	7½ p.c.	30 p.c.

Spokesman for the E.I.A. stated that proposed item 927a was intended to cover, in addition to the parts specifically named in it, any other parts used in the manufacture of laminated core transformers, unless provided for by name elsewhere in the Customs Tariff.<sup>(1)</sup> Thus, the proposed item would cover practically all parts used in the manufacture of laminated core transformers, with a reduction of 5 percentage points under both the British Preferential and the Most-Favoured-Nation Tariffs. Similarly, practically all parts used in the manufacture of transformers with other than laminated cores would, under the proposal, be entered under E.I.A. item 930a, with the British preferential rate 7½ percentage points and the most-favoured-nation rate 10 percentage points lower than those now applying to such parts under tariff item 445f.

The two provisions for materials are both qualified by the term "n.o.p." and, consequently, would apply only to those materials which are not specifically named elsewhere in the Customs Tariff. In fact, most of the materials, such as wire, paper, wax or synthetic resins, are provided for by name in existing tariff items and would continue to be entered under them. Moreover, the E.I.A. made specific provisions for duty-free entry of a number of materials at least three of which are used in the manufacture of transformers, namely acid- or alkali-free super- or machine-calendered kraft tissue and cellulose acetate and polyester films, in its proposed item 971(a), discussed under the heading "Miscellaneous Products" later in this section. It would thus appear that the two proposed provisions in so far as they relate to materials for use in the manufacture of transformers would be of very little practical value to the industry. This conclusion tends to be confirmed by evidence given by the spokesman for the E.I.A. who had this to say about the materials that might be entered under proposed item 927b:

"... Actually I think it is very questionable whether there would be any. In the first place, I think that 90 per cent of our materials are bought in Canada today, but my understanding of the wording of this particular part is that it could only be used in places where the material ... is not named, and all of the common materials that we use are named in the tariff .... Therefore, this would only be good in a rather small number of items of material, and I am not sure that I could tell you any of them off-hand, that you could bring in under this item."<sup>(2)</sup>

(1) Transcript, October 1, 1962, p. 551.

(2) Same, p. 617.



In a joint submission, four Canadian manufacturers of transformers for radio and related applications, namely Audio Transformer Co. Ltd., Hammond Manufacturing Company Limited, RCA Victor Company Ltd. and Standard Television Products Ltd., proposed:

1. That item 927a of the Electronic Industries Association proposal be amended as follows:-

	<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
927a Parts for use in the manufacture of the goods enumerated in <u>[E.I.A.]</u> tariff item 927, including laminations, vertical and horizontal covers, not plated or painted, bobbins, coil windings forms, core tubes, end collars, insulators	10 p.c.	17½ p.c.	30 p.c.

2. That a new item 927c be created:-

927c Parts for use in the manufacture of the goods enumerated in [E.I.A.] tariff item 927, namely\* channel frames, shields, drawn transformer cans and lids, mounting brackets, keeper laminations.

All of the foregoing when of a class or kind not made in Canada      Free      Free      Free

\*In the original proposal the term "including" was used instead of "namely". Transcript, October 1, 1962, p. 552.

Thus, under these proposals certain specified parts, namely those listed in proposed item 927c, would be allowed duty-free entry when ruled to be of a class or kind not made in Canada. The Board estimates the value of the parts that might qualify for duty-free entry under this provision to be about \$150,000 annually. The spokesman for the four manufacturers associated in this proposal explained the reasons for it as follows:

"... these parts first of all are not made in Canada at the present time, and because of the terrific amount of tooling which is involved in them, and the wide variety of parts, the likelihood is very small that they ever will be made in Canada ...."(1)

Some types of the shields named in proposed item 927c are made in Canada and at least three types of channel frames were made in Canada at one time. An examination of some of the other named parts did not suggest any more complex tooling requirements, although the variety

(1) Transcript, October 1, 1962, p. 614-615.



required undoubtedly would pose difficulties in some instances.

With the exception of those parts that would qualify for duty-free entry under proposed item 927c, all the other parts would be entered under proposed item 927a.

In verbal representations at the public hearing, El-Met-Parts Limited, of Dundas, Ontario, expressed opposition to the changes in the tariff treatment of parts for use in the manufacture of laminated transformers contemplated by the E.I.A. and by the four transformer manufacturers. More particularly, the firm expressed concern about the reduction in tariff protection on laminations which would result from these proposals. At present, laminations are dutiable under tariff item 445f at 15 p.c., B.P. and  $22\frac{1}{2}$  p.c., M.F.N.; under the E.I.A. proposal they would be entered under proposed item 927a at 10 p.c. and  $17\frac{1}{2}$  p.c., respectively.

El-Met-Parts Limited is the only firm in Canada manufacturing steel laminations for sale to transformer manufacturers; it does not produce complete transformers. At least one manufacturer of transformers makes his own laminations, but does not normally offer them for sale to others. At the time of the public hearing, about one-half of the laminations sold by El-Met were destined for radio and television applications; the remainder consisted of laminations destined for other applications as, for example, in fluorescent ballast transformers. In recent years, El-Met appears to have been supplying from 50 to 80 per cent of the Canadian market for laminations used in transformers for radio and related applications; the remainder has been supplied from captive output or by imports from the United States. El-Met also manufactures horizontal and vertical covers and shields and, at one time, was making three types of channel frames. It does not make any of the other metal parts used in the manufacture of transformers, such as drawn cans and lids, mounting brackets, or keeper laminations.

The manufacture of transformer laminations is essentially a stamping operation, the individual laminations being stamped out on a punch press from a strip of steel of the required thickness. The only other step required to complete the manufacturing process is heat-treating, or annealing, which is designed to impart to the laminations the desired electrical and magnetic characteristics. The steel used in the manufacture of laminations is mostly of the silicon type. At the time of the public hearing, El-Met was obtaining about 60 per cent, by volume, of its requirements in Canada, and was importing the remainder duty-free from the United States. Considerable evidence was adduced during the public hearing concerning the costs associated with the preparation and maintenance of the punch press dies used in making laminations, and the engineering know-how required to determine and achieve the magnetic characteristics suited for a particular end-use. However, there is evidence that laminations for use in radio and television applications are, by and large, standard items and, consequently, are not affected by these fixed costs nearly as much as the more specialized types produced in relatively small volume. With steel accounting for about 62 per cent of the selling price<sup>(1)</sup> and entitled to duty-free entry, the existing duty of  $22\frac{1}{2}$  p.c. applicable on laminations imported from the United States offers an effective rate of

<sup>(1)</sup> Transcript, October 1, 1962, p. 583.

protection on the manufacturing operation in Canada of just under 60 per cent; the duty of  $17\frac{1}{2}$  p.c. proposed by the E.I.A. and by the four manufacturers of transformers would reduce the effective protection to about 45 per cent.

### Loudspeakers

Loudspeakers, sometimes referred to simply as speakers, are devices which convert electrical signals into sound. In most of the speakers used in radio and related applications this is accomplished by means of a coil of wire, known as the voice coil, mounted in a magnetic field and attached to a diaphragm; the passage of an electric current through the coil causes it to move which, in turn, causes the diaphragm to vibrate and radiate sound.

There are two basic types of loudspeakers in use today, known as the direct radiating and the horn types. Direct radiating, or hornless, speakers employ a relatively large diaphragm, usually a paper cone, which radiates sound directly into unconfined air. Because of their wide frequency response and relatively small size, direct radiating loudspeakers are particularly suited for radio applications and are the ones commonly found in equipment ranging from small transistor or table radios to large high-fidelity systems. The more common types of direct radiating speakers vary in diameter from 2" to 15" and in factory price from less than one dollar to well over one hundred dollars; the average unit value of Canadian shipments in recent years has been about \$1.50, suggesting that Canadian production is concentrated in the lower price ranges.

Horn loudspeakers employ a relatively small diaphragm coupled to a metal horn; the horn acts as an extension of the diaphragm and enables it to radiate sound more efficiently. Horn speakers are used where high sound output is required and where size is relatively unimportant as, for example, in public address systems. They come in a variety of sizes and shapes, and usually range from 15 to 100 watts in power handling capacity, and from just under \$20 to several hundred dollars in price. The horn-type speakers are not manufactured in Canada at present.

A typical direct radiating speaker usually consists of the following parts: voice coil, cone, cone housing, cone surround, gasket, spider, magnet, field case, pole piece, and dust cover. Each of these is described in detail below:

The voice coil consists of magnet wire wound on a paper or aluminum foil form, or bobbin.

The cone, or diaphragm, forms a vital part of the speaker being chiefly responsible for the quality of sound. Although the cones are usually referred to as paper cones, they are in fact composed of a matrix of fibres having a certain transmission rate of sound; the composition varies depending on the performance characteristics required from the speaker.

The cone housing, also known as the frame or basket, is the metal stamping or casting which forms the supporting structure for the cone and its associated parts.



The cone surround is a ring or flange made from phenolic treated cloth, foam rubber or similar material which fits between the cone and the cone housing on the open side of the speaker; its purpose is to provide the cone with the necessary freedom of movement.

The gasket fits into the flange of the cone housing at its open end acting as a spacer and buffer for installation purposes; it may be made of laminated paper, felt, cork or other insulating material.

The spider, or spider suspension, is a small ring of corrugated phenolic cloth which fits over the voice coil at the point where it enters the cone and keeps the voice coil centered.

The magnet provides the steady magnetic field necessary for the movement of the voice coil. The magnets currently in use are mostly of the permanent type. They are made of various metal alloys and are usually referred to as "Alnico" (aluminum, nickel, cobalt) magnets; in recent years, ceramic magnets, made by firing barium ferrite at high temperatures and forming under high pressures, have become increasingly popular. The conventional "Alnico" magnets are usually drum-shaped and come in weights ranging from about half an ounce to about seven ounces. Ceramic magnets are usually disc-shaped washers ranging in weight from about two ounces to several pounds.

The field case, also referred to as a magnet case, field cover or yoke, serves as a housing for the magnet and provides the return magnetic path. Where conventional "Alnico" magnets are used, the field case usually consists of two metal stamping, one U-shaped and the other flat, fastened together; for ceramic magnets, two metal rings or washers are generally used, one on each side of the disc-shaped magnet.

The pole piece, or pole, is a stud-shaped piece of solid metal attached to the magnet at one end and extending through the voice coil into the cone opening, or air-gap; its purpose is to transmit the energy generated by the magnet and concentrate it in the air-gap.

The dust cover or dust cap fits over the air-gap and serves to prevent foreign materials entering the gap and distorting the sound; it may be made of a variety of materials, including moulded paper, felt, phenolic fabric, urethane foam or perforated sheet metal.

The principal materials used in the manufacture of loudspeakers include paper or aluminum foil used in making the forms, or bobbins, for voice coils, the voice coil wire, and tinsel wire used in connecting the voice coil to a terminal board. The paper used for making voice coil bobbins is technically described as acid- and alkali-free super- or machine-calendered kraft tissue of electrical grade.

The manufacturers of loudspeakers in Canada are engaged chiefly in the assembly of purchased components, with parts and materials accounting, on the average for about 67 per cent of the total factory cost. It is evident from this that labour and capital are not substantial elements of cost in the manufacture of loudspeakers as it is carried on in Canada.



## Canadian Market

In mid-1962 the following firms were reported to be engaged in the manufacture of loudspeakers in Canada on a significant scale: Marsland Engineering Limited, The McKinnon Industries, Limited, Radio Speakers of Canada Limited, RCA Victor Company Ltd. and Renfrew Electric Co. Limited. Two of these, namely McKinnon Industries and RCA Victor, produce speakers for their own use, although the latter also sells some of its output to other equipment manufacturers. The other three manufacturers of loudspeakers normally sell all of their output as they do not make complete equipment. Only Radio Speakers of Canada and McKinnon Industries have been manufacturing speakers for a considerable length of time; the other firms have entered the field since 1958, or have been manufacturing intermittently. The speakers that are made in Canada are all of the direct radiating, or hornless, type and most of them are destined for incorporation in new radio and television equipment. The total commercial value of the loudspeakers produced by the five Canadian manufacturers during 1962 is estimated at about \$3 million, representing over 2 million speakers.

Imports of loudspeakers are not reported separately in Canadian statistics. However, surveys undertaken by the Board suggest that they are valued at about \$2 million annually; of these, about 60 per cent are for use in sound systems, such as public address systems, and the remaining 40 per cent, or some \$800,000-worth, for incorporation into radio and television equipment. There is evidence that a significant portion of the imports consists of high-quality, high-priced speakers of a type not normally available from Canadian production. Import competition in the types of speakers made by Canadian manufacturers appears to be limited as most of these are destined for installation in new equipment and are made to equipment manufacturers' individual specifications; proximity to the market gives the Canadian manufacturer an advantage. In response to an inquiry from the Board, two Canadian manufacturers, advised that they had not been losing sales because of import competition. However, one manufacturer did claim to be experiencing difficulty with imports from the United Kingdom, particularly those for radio and television applications which are entitled to duty-free entry under tariff item 445d.

The Board has obtained information on prices in Canada of loudspeakers imported from the United Kingdom. This shows prices to equipment manufacturers in Canada of the imported speakers to be in some cases somewhat below and in others somewhat above those of comparable Canadian-made speakers; in no case was the price of the Canadian-made speaker more than 10 per cent higher, and in one case it was 14 per cent below that of a comparable speaker imported from the United Kingdom. However, a significant portion of the imports from the United Kingdom appears to consist of types not directly comparable with those normally made in Canada, such as the horn speakers, larger sizes of direct radiating speakers, or high-quality, more expensive speakers for use in custom built high-fidelity or stereophonic equipment. Thus, although competing types of speakers have, no doubt, been imported from the United Kingdom, their impact on the operations of Canadian manufacturers does not appear to have been very great. This conclusion tends to be confirmed by the fact that despite duty-free entry of loudspeakers for radio and television applications imported from the United Kingdom, Canadian production of such speakers has been increasing, with at least two new entrants into the field in recent years.

Parts and Materials - The total value of parts and materials used in the manufacture of loudspeakers in Canada is estimated by the Board at about \$1.8 million annually, of which about \$500,000 is supplied by imports. Among the parts for which Canadian manufacturers appear to rely entirely on imports are cones, spiders and cone surrounds. The materials which are being imported include voice coil paper, voice coil wire and tinsel wire for voice coil leads.

Among the parts available domestically, permanent magnets represent the largest single item in terms of value. Canadian requirements are estimated at between \$500,000 and \$600,000, of which substantially more than one-half is obtained from domestic sources. Imports believed to be valued between \$150,000 and \$200,000 annually include ceramic magnets, not available from domestic production at the present time. The other parts, including cone housings, field cases, pole pieces and dust covers and caps are for the most part available from Canadian suppliers and are mostly obtained in Canada, with imports confined to special types or sizes.

#### Existing Tariff Treatment

Depending on the type of equipment for which they are destined, loudspeakers are at present classified mostly as follows:

<u>When for use in:</u>	<u>Item No.</u>	<u>Rates of Duty</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Radio and television	445d	Free	20 p.c.	30 p.c.
Phonographs and combinations	597a(2)	15 p.c.	20 p.c.	30 p.c.
Sound equipment	445k	15 p.c.	22½ p.c.	30 p.c.

For full wording of the relevant tariff items see Appendix A.

As noted earlier, about 80 per cent of the imports are believed to be destined for use with sound equipment, such as public address systems.

Most of the parts used in the manufacture of loudspeakers are at present entitled to duty-free entry from both British preferential and most-favoured-nation countries under the following descriptions embodied in existing item 445o(1):

Cones, spiders, spider suspensions, voice coils and voice coil dust covers, separate or assembled;  
 Frames, yokes, brackets, pole-pieces, gaskets and field covers, separate or assembled for use in speakers with mounting diameter not exceeding 6 3/8 inches;  
 Magnetic structures and parts thereof for permanent magnet speakers;

The parts that do not qualify for entry under the above provisions, such as the frames, yokes, brackets, etc., for speakers with



mounting diameter in excess of 6 3/8 inches, would for the most part be entered under the tariff item applicable to the loudspeaker for which they are destined.

Most of the materials, such as the paper, aluminum foil or wire for voice coils, are also entitled to duty-free entry under existing item 4450(4). Under this item also can be entered the unmagnetized pieces of metal, known as magnet blanks, which upon magnetization, become permanent magnets; it is understood that permanent magnets are normally supplied to manufacturers of loudspeakers in this form.

Thus, it is evident that at present practically all of the parts and materials are entitled to duty-free entry while the loudspeakers themselves are generally dutiable, at 15 p.c., B.P. and 20 or 22½ p.c., M.F.N., with the exception of those for use in radio and television which are entered duty-free under the British Preferential Tariff. With parts and materials accounting on the average for about two-thirds of the total factory cost, the effective level of protection on the assembly operation is more than double the nominal rates of duty.

#### Proposals and Other Representations

The Electronic Industries Association of Canada (E.I.A.) proposed the establishment of the following separate tariff item providing for loudspeakers and for certain sub-assemblies:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
950	Loudspeakers for the reproduction of sound; loudspeaker sub-assemblies, viz.: chassis, including conehousing, field case, magnet, pole piece, assembled; diaphragm, including cone, spider, voice coil, tinsel wire for voice coil leads, dustproofing, assembled	15 p.c.	20 p.c.	30 p.c.

The principal changes resulting from the proposal would be the imposition of a British preferential duty of 15 p.c. on loudspeakers for radio and television, which are now entered duty-free, and a slight reduction in the most-favoured-nation duty on loudspeakers for sound systems, now dutiable at 22½ p.c. The two sub-assemblies mentioned in the proposed item, namely chassis and diaphragms, would probably qualify for entry under item 4450(1), duty-free under both the British Preferential and the Most-Favoured-Nation Tariff; on these the duties would be increased to the full extent of the proposed rates.

A spokesman for the industry, explained the reasons for the proposal as follows:

" As you know, the parts for loudspeakers are very well spelled out under the present tariff item 4450(i), (ii) and (iii). However, when the speaker is built and becomes a finished part, then it completely disappears, and becomes a part n.o.p., which may be



imported under three tariff items that I know, 445d, k, 597a, carrying various rates of duty. It then of course becomes an end-use item, and since the end-use is often hard to establish it becomes a matter of administration. As a result there have been considerable importations of speakers which, through errors, have been imported under incorrect tariff items. We feel that a better arrangement can be made on both importation of parts and importation of complete speakers by having an ex-nomine rate, and having a single tariff item under which all importations can be made.

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"... If one wishes to make loudspeakers, then of course you need to have parts, but if you want to ... circumvent the main use of Canadian labour, then you can get parts like this [sub-assemblies] ... all assembled in a low wage country, and have them brought in, and with a little expenditure of Canadian capital and labour build a loudspeaker. Therefore we have said in item 950 that we want to carry a full rate of duty for any parts which have assembly labour put into them. A combination of parts, I should say, not a single part." (1)

For parts and most of the materials used in the manufacture of loudspeakers the E.I.A. proposed the following two items:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
950a	Parts, for use in the manufacture of the goods enumerated in [E.I.A.] tariff item 950, including cone-housings, frames, field cases, gaskets, brackets, pole pieces, magnets and magnet structures	5 p.c.	7½ p.c.	30 p.c.
970(a)	Diaphragm parts including cones, spiders, cone surrounds; dust covers of moulded paper, baked fabric, textile fabric or perforated sheet material; diaphragm and voice coil paper; plain aluminum foil; voice coil wire; tinsel wire for voice coil leads; all the foregoing, when for use in the manufacture of the goods enumerated in [E.I.A.] tariff item 950;			
	All of the foregoing when of a class or kind not made in Canada	Free	Free	30 p.c.

(1) Transcript, October 2, 1962, p. 711-712.

In addition, E.I.A. proposed item 973, discussed under the heading "Miscellaneous Products" later in this section, provides for materials and parts for use in the manufacture of the goods enumerated in a number of proposed items, including item 970. In fact, however, the two items quoted above appear to encompass, with one possible exception, all of the parts and materials currently used by Canadian manufacturers of loudspeakers. The one exception, unmagnetized pieces of metal, or magnet blanks, are at present classified as materials under tariff item 4450(4); proposed item 950a does not provide for materials and it is not altogether certain whether the provision for magnets and magnet structures would encompass magnet blanks imported separately.<sup>(1)</sup> However, assuming that magnet blanks were to be entitled to entry under proposed item 950a, it is estimated that imports under it would be valued at between \$200,000 and \$250,000 annually; most of these are now entered duty-free. Imports of the parts and materials named in proposed item 970(a) are estimated at between \$250,000 and \$300,000 annually; it is not possible to say what proportion of these would be "of a class or kind not made in Canada," although most Canadian requirements appear to be currently supplied by imports.

Explaining the reasons for the proposals respecting parts and materials, spokesman for the E.I.A. stated:

" When we go to Item 950a, there are named there a number of parts, all of which are tooled in Canada, and are manufactured by stamping plants. ...

"... we have another group of parts under Item 970, which are presently covered under Item 4450(i), and we have named them as diaphragm parts. This includes such items as the cones, the various dust-proofing, and things like voice coil wire, which is a special wire made for voice coils of a soft annealed copper that Canadian manufacturers have not seen fit to manufacture. ..."(2)

The only other representations pertaining specifically to loudspeakers or to parts used in their manufacture were those of The Indiana Steel Products Company of Canada Limited, of Kitchener, Ontario, a subsidiary of Indiana General Corporation, of Valparaiso, Indiana. This firm has since 1956 been manufacturing permanent magnets, including those for use in loudspeakers. At the time of the hearing, the company estimated the total Canadian market for permanent magnets for speaker applications at about \$475,000, of which it claimed to be supplying about one-third; the remainder was said to be supplied about equally by imports and by Canadian General Electric Company Limited, the only other Canadian manufacturer of permanent magnets. Indiana Steel makes in Canada a full range of the standard types of magnets required in speaker

(1) Spokesman for the E.I.A. proposed during the public hearing that the provision for magnets and magnetic structures be amended by the addition of the phrase "whether or not magnetized" in order to ensure that magnet blanks can be imported under it. Transcript, October 2, 1962, p. 732-733.

(2) Transcript, October 2, 1962, p. 712-713.



applications; it continues to import from its parent company in the United States special types required in low volume, as well as ceramic magnets not manufactured in Canada at present.

Indiana Steel proposed that duties of 15 p.c., B.P. and 20 p.c., M.F.N. be provided for permanent magnets destined for use in the manufacture of permanent magnet speakers. At present, such magnets are entered as materials under tariff item 4450(4), being normally imported unmagnetized. Similar magnets imported for other uses are understood to be entered mostly under tariff item 711, at 15 p.c., B.P. and 20 p.c., M.F.N.

In support of its proposal, the company noted in its submission that since 1956 Canadian prices of permanent magnets for loudspeakers have declined, while costs of manufacture have increased. It went on to say:

" The duty treatment of permanent magnets for use in permanent magnet speakers is an historical relic, and an exception to the duty treatment of permanent magnets generally. Item 4450 was introduced into the tariff in 1939, at which time no such magnets were produced in Canada. The circumstances under which this tariff provision was made no longer exist."<sup>(1)</sup>

As noted earlier, magnets are the most important single part used in the manufacture of loudspeakers; on the average, they account for about 33 per cent of the cost of parts and materials and for about  $22\frac{1}{2}$  per cent of the total factory cost of loudspeakers manufactured in Canada. From this it is apparent that the proposed duty of 15 p.c. under the British Preferential Tariff, would, at most, result in an increase of about 5 per cent in the material cost and of about  $3\frac{1}{2}$  per cent in the total cost of the loudspeakers made in Canada; similarly, the proposed 20 p.c. most-favoured-nation duty would, at most, increase material and total costs by  $6\frac{1}{2}$  and  $4\frac{1}{2}$  per cent, respectively.

### Capacitors

Capacitors, also known as condensers, are devices designed to store electricity. They are commonly used in a variety of electrical apparatus, including radio, television, telephone and telegraph equipment, phonographs, tape recorders, computers, fluorescent lighting, car generators, industrial equipment and in the transmission of electrical power. However, this Report is concerned only with those capacitors used in the radio and related equipment under review in Reference 123.

A typical capacitor consists of a pair of conductors, known as electrodes or plates, separated by an insulator, known as the dielectric. When voltage is applied across the dielectric, the electric charge becomes stored in it; the stored charge can be released when needed by placing a short circuit across the dielectric. The ability to store an electric charge is known as capacitance; it is measured in terms of microfarads and micromicrofarads. Most of the capacitors used in radio applications are in the range between 0.5 micromicrofarads and 1,000 microfarads. Capacitors are generally classified as fixed capaci-

(1) Transcript, October 2, 1962, p. 750.



tors, whose capacitance cannot be varied, and variable capacitors, whose capacitance can be varied within a certain range; the latter are used mostly in conjunction with larger capacitors to permit small changes in total capacitance and are usually referred to as trimmers. Capacitors are also classified according to their dielectric; the principal types used in radio and related applications are; electrolytic, paper, plastic, mica, ceramic, air and glass capacitors, with the last two being chiefly of the variable type. Although the capacitance as well as other performance characteristics differ as between the various types, some, such as the paper, mica, and ceramic capacitors, are substitutable within certain capacitance range. Most of the capacitors used in radio applications are tubular, rectangular or disc-shaped. Tubular capacitors are usually enclosed in wax-impregnated cardboard, aluminium or plastic cases; the other types are encapsulated in molded bakelite or similar plastic, or are dip-coated with plastic.

The principal materials used in the manufacture of capacitors include plain or etched aluminum, tin or tantalum foil, or tantalum powder, which are used for electrodes; tissue paper, polyester and polystyrene film, mica and ceramic materials used as the dielectrics; and various types of electrolytes, impregnants, and wax or plastic coatings. Among the principal parts are the cardboard, metal or plastic cases, and terminals. Some manufacturers in Canada also purchase semi-processed materials, such as sintered tantallum pellets for use in the manufacture of electrolytic tantallum capacitors, and mica punchings and ceramic bodies for use in making mica and ceramic capacitors. By and large, however, the manufacture of capacitors as carried on in Canada starts with the basic raw materials, with considerable value added by the manufacturing process. The relationship which the cost of parts and materials bears to the sales value of the finished product ranges from less than 30 per cent in the case of ceramic capacitors to just under 40 per cent in the case of electrolytic capacitors, with an average for all principal types of about 37 per cent. It is evident from this that the manufacturing process enhances the value of the purchased materials to a considerably greater extent than is the case in the manufacture of some of the other radio components, such as tubes, transformers or loudspeakers, or than is the case in Canadian manufacturing generally, where materials used account on the average for about 54 per cent of sales value.

### Canadian Market

About twelve firms in Canada are engaged in manufacturing capacitors for radio and related applications; between them, they make all of the basic types used in radio equipment and several of them make capacitors for other applications as well. Most of the Canadian manufacturers tend to specialize in one or two related types of capacitors, such as paper and plastic, or mica and ceramic; they sell all of their output as they do not, as a rule, manufacture complete equipment themselves; for a number of these, capacitors account for a small portion of their total output. Only one equipment manufacturer, Northern Electric Company Limited, makes its own capacitors; all of its output is for captive use and much of it is destined for incorporation in telephone equipment, which is not under review in Reference 123.

Canadian shipments of capacitors for radio and television applications reached an all-time high of just under \$6 million in 1955

(Appendix B, Table 4). In subsequent years they declined steadily to a low of \$3.2 million in 1960. Shipments in 1961 recovered somewhat, to about \$3.7 million, and there are indications that they may have reached and possibly exceeded \$4.5 million in 1962. With most of the capacitors destined for incorporation in new equipment, the fluctuations in Canadian shipments have followed closely those in sales of radio and television equipment.

Imports of capacitors for use in radio and related equipment are not reported separately in Canadian statistics being included with imports of radio apparatus and components and parts in basket statistical class 6167 (Appendix C, Table 6). However, the Board has made a sample survey of imports under this class which showed capacitors to be the second largest item, in terms of value, entered under it; about three-quarters of the imported capacitors originate in the United States, with the remainder coming mostly from the United Kingdom.

Some indication of the order of magnitude and recent trends in the imports from the United States can be obtained from that country's official statistics. These show that exports of electronic capacitors to Canada increased in value from about \$3 million in 1955 to close to \$4 million in 1962, but declined in number from more than 24 million to about 19 million.<sup>(1)</sup> Although some of these capacitors may be destined for use in electronic equipment other than that which is under review in this Report, the Board's survey suggests that in 1961 out of a total of \$3.4 million some \$2 million were for radio applications. The extent to which the capacitors imported from the United States compete directly with Canadian production is difficult to establish. However, several of the firms which manufacture capacitors in Canada are subsidiaries or affiliates of companies in the United States; the Board's survey indicated that at least four of these import capacitors from the United States, some of which would be of types not made in Canada. However, the imports by capacitor manufacturers affiliated with firms in the United States do not account for a very significant portion of total imports from that country; most of the other imports are made by the large companies manufacturing complete equipment, some of which have affiliates in the United States manufacturing capacitors. These relationships, no doubt, help to explain why the Board received during the public hearing no complaints against imports from the United States, despite the fact that most of the imported capacitors originate in that country. Capacitors for radio applications imported from the United States are at present subject to a duty of 20 p.c.

Imports from the United Kingdom of capacitors for use in radio and television equipment have not been very large in relation either to those from the United States or to Canadian shipments. According to the Board's survey they come to less than one-quarter of those from the United States, suggesting a commercial value of between \$250,000 and \$500,000 annually. Although all of the basic types of capacitors are being imported from the United Kingdom, electrolytic capacitors appear to account for a large portion of the total and are the ones said to cause greatest difficulty to domestic manufacturers. The Board obtained considerable evidence concerning prices of Canadian-made and British capacitors; this shows substantial variations in the relationship between them, with Canadian prices sometime above and sometime below those

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(1) U.S. Bureau of the Census. United States Export Statistics, Report FT 410, Part II. Schedule B number 70852.



prevailing in the United Kingdom. The variations are due, to a large extent, to the price differentials which exist not only as between different types of capacitors, many of which are produced to manufacturers' individual specifications, but also as between quantities purchased. For example, published price schedules of British manufacturers show quantity discounts of as much as 90 per cent on some types of electrolytic capacitors. Similarly, Canadian prices are understood to vary considerably, with most of them negotiated individually on the basis of specifications and quantities required by a particular equipment manufacturer; several Canadian manufacturers do not even publish price lists. Under these circumstances, it is extremely difficult to arrive at a generally applicable measure of any price disadvantage, or advantage, that Canadian manufacturers have in relation to imports from the United Kingdom. However, despite duty-free entry, imports from the United Kingdom have not been large.

In summary, Canadian shipments of capacitors for radio and television applications declined from 1955 to 1960, with some recovery evident since then. Currently, the commercial market for capacitors destined for use in the equipment under review in Reference 123 is estimated at about \$7 million, of which about \$4.5 million is supplied by domestic shipments. Imports come chiefly from the United States, with the United Kingdom supplying less than \$500,000 in recent years. There have been some exports of capacitors from Canada, but they have been small in relation to domestic shipments.

Parts and Materials - The total annual consumption of the parts and materials used in the manufacture of the capacitors under consideration is estimated to have averaged about \$1.5 million in recent years. The various materials used as electrodes and dielectrics account for about two-thirds of the total; most of these are at present supplied by imports, including tissue paper, polyester film, and ceramic and mica dielectrics, as well as all of the etched aluminum and tantalum foil, and tantalum powder used for electrodes. The tissue paper is similar although not completely identical with that used in the manufacture of transformers and loudspeakers and is known technically as acid- or alkali-free super- or machine-calendered kraft tissue; in the manufacture of capacitors it is used in thicknesses ranging generally from about .0002 to .001 inch. There is evidence that kraft paper meeting these specifications is not available in Canada at present. The polyester film used in making capacitors is known under the name "Mylar", a trade name of E.I. du Pont de Nemours & Co., Inc.; it is used mostly in thicknesses from .0002 to .001 inch and in widths of between  $\frac{1}{2}$  inch and  $1\frac{1}{2}$  inches. Mylar film is not manufactured in Canada at the present time, nor is any other polyethyleneterephthalate film. The principal Canadian manufacturer of ceramic capacitors makes most of the ceramic dielectric bodies which it uses, chiefly from imported barium titanate and titanium dioxide, neither of which was said to be available in Canada in required degree of purity. Another manufacturer of ceramic capacitors is known to import the ceramic bodies themselves. In addition, there are two firms in Eastern Ontario which make ceramic bodies for capacitor uses, but their output has so far been limited and confined chiefly to specialized types. The mica used in making capacitors is a special electrical grade known as low loss mica; this grade is not available from Canadian production and imports are chiefly in the form of punchings, rather than raw unshaped mica. Although plain aluminum foil is available from several sources in Canada, etched aluminum foil is not, as none of the Canadian manufacturers



possess the necessary etching facilities. The tantalum foil used in making capacitors is usually .002 inch or less in thickness and is not more than five inches wide; according to evidence, tantalum foil in these dimensions is not available from Canadian suppliers. Similarly, all of the tantalum powder used in the manufacture of electrolytic tantalum capacitors is imported.

The remaining \$500,000 worth of parts and materials include the various types of housings, wire, impregnants and coatings. Some of these are available from Canadian sources, others have to be imported, with the exact ratio of imports to domestic purchases difficult to establish. However, it is believed that most of these parts and materials are obtainable in Canada.

#### Existing Tariff Treatment

Capacitors for use in radio, television and related equipment are at present classified mostly as follows:

<u>When for use in:</u>	<u>Item No.</u>	<u>Rates of Duty</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Radio and television	445d	Free	20 p.c.	30 p.c.
Phonographs and combinations	597a(2)	15 p.c.	20 p.c.	30 p.c.
Tape recorders, sound equipment, etc.	445k	15 p.c.	22½ p.c.	30 p.c.

For full wording of the relevant tariff items see Appendix A.

Most of the imported capacitors are believed to be entered under tariff item 445d, with imports estimated at about \$2.5 million, chiefly from the United States.

Several of the principal materials are specifically named in existing items 445o(1) and 445o(3), which provide duty-free entry under both the British Preferential and the Most-Favoured-Nation Tariffs. Included among these are:

- Acid-free capacitor tissue and paper, plain and gummed;
- Radio frequency ceramics;
- Raw low loss mica;
- Sheets and punchings of low loss mica;
- Etched aluminum foil;
- Metal powders;

In addition, materials for use in the manufacture of the above items, such as the barium titanate and titanium dioxide used in making ceramic bodies (radio frequency ceramics), are also allowed duty-free entry from British preferential and most-favoured-nation countries under tariff item 445o(4). The full wording and histories of tariff items 445o(1), 445o(3) and 445o(4) appear in Appendix A.

The remaining materials are entered at various rates mostly under tariff items normally applicable to them, such as items 353

(plain aluminum foil), 711 (tantalum foil), 906 (polyester and polystyrene films), 272b (waxes) or 350 (wire).

### Proposals and Other Representations

The Electronic Industries Association of Canada (E.I.A.) proposed a separate item for capacitors reading as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
942	Electrical capacitors or condensers excluding power factor correction capacitors, motor starting capacitors and fluorescent ballast capacitors	15 p.c.	20 p.c.	30 p.c.

Explaining the proposal, the spokesman for the Association stated that the exclusions contained in the wording of the item were intended to remove from it those types of capacitors which are used chiefly in electrical rather than electronic applications. However, according to subsequent evidence it appears that even with these exclusions, the item would attract capacitors other than those for use in the equipment under review in Reference 123; for example, capacitors used in connection with electrical fences would qualify for entry under the proposed item. Moreover, the descriptions of the categories excluded from the proposed item relate for the most part to end-use, rather than to a particular type of capacitor; for example, capacitors used for power factor correction can be used in other applications as well. In view of this, the Board considers that the proposed item would not lend itself to effective administration.

To the extent that the proposed item would cover the capacitors for use in radio, television and related equipment, most of which are now entered under tariff item 445d, the duty-free entry under the British Preferential Tariff would be replaced by a duty of 15 p.c., with no change in rate under the Most-Favoured-Nation Tariff. Most of the imports have been under the latter tariff as they come chiefly from the United States.

Most of the principal materials and some of the parts used in the manufacture of capacitors are specifically named in E.I.A. item 971(a). This item proposes duty-free entry under both the British Preferential and the Most-Favoured-Nation Tariff for the following products used in the manufacture of capacitors, when of a class or kind not made in Canada:

Acid- or alkali-free super- or machine-calendered kraft tissue not exceeding .010 inch in thickness;  
ceramic ware (or body) for capacitor applications;  
etched aluminum foil;  
polyester film not exceeding .010 inch in thickness;  
polystyrene film not exceeding .010 inch in thickness;  
radio frequency ceramic dielectrics;

raw low loss mica;  
 sheets and punchings of low loss mica;  
 tantalum foil;

As noted earlier, the above materials are for the most part either not available from Canadian suppliers at all, or are not available in the required specifications; consequently, they would very likely be considered for customs purposes as of a class or kind not made in Canada and would qualify for duty-free entry under E.I.A. proposed item 971(a). At present, most of these are free of duty under existing items 445o(1) or 445o(3); the exceptions include the polyester and polystyrene films, now dutiable under item 906(e) at 15 p.c., under both Tariffs, and tantalum foil, at present imported under item 711 at 15 p.c., B.P. and 20 p.c., M.F.N. The polyester film, known under the trade name "Mylar", is at present all imported from the United States, as is the tantalum foil. The use of polystyrene films in the manufacture of plastic capacitors is relatively new; there is no known Canadian production of this type of capacitor at the present time. E.I.A. proposed item 971(a) is discussed also under the heading "Miscellaneous Products" later in this section.

The E.I.A. also proposed the establishment of the following two items which would cover those parts and materials used in the manufacture of capacitors not specifically mentioned in E.I.A. proposed item 971(a):

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
942a	Parts, n.o.p., for use in the manufacture of the goods enumerated in <u>[E.I.A.]</u> tariff item 942	7½ p.c.	12½ p.c.	30 p.c.
942b	Materials, n.o.p., for use in the manufacture of the goods enumerated in <u>[E.I.A.]</u> tariff items 942 and 942a	5 p.c.	7½ p.c.	30 p.c.

The first of these items would, presumably, cover complete parts such as metal or cardboard cases, terminals or brackets. These are now classified mostly according to material, although some may be admitted as parts of radio or electrical apparatus under existing tariff item 445d or 445k; the proposal would result for the most part in some reduction in duties. The second item would cover materials such as wire, foil, impregnants and plastic coatings; most of these are now dutiable under tariff items normally applicable to such materials at rates of duty somewhat higher than those proposed for item 942b.

The only other representation dealing specifically with capacitors was that of Union Carbide Canada Limited. This company manufactures solid tantalum capacitors most of which are destined for use in airborne radio equipment. Such capacitors now qualify for duty-free entry under tariff item 440r, when of types or sizes not made in Canada, while those that are made are entered under item 445d. The company requested that



"any changes to tariff item 440r should continue to provide free entry under both British Preferential and Most Favoured Nation categories of all parts when of types or sizes not made in Canada".<sup>(1)</sup> Spokesman for the company also stated at the public hearing that his firm did not feel that it would be adversely affected by any of the proposals put forward by the E.I.A. with respect to capacitors.<sup>(2)</sup>

### Resistors

Resistors are devices used to introduce resistance into an electrical circuit for the purpose of reducing the flow of current to the required level. Like the capacitors discussed previously, resistors are used in a great variety of electrical applications; the discussion here is confined to those destined for use in radio, television and related equipment under review in Reference 123. The principal types of resistors currently used in these applications include, in the approximate order of importance, carbon-composition, wire-wound and film resistors.

In general, resistors are rated according to their resistance value, measured in ohms, and their ability to dissipate power without excessive heat, expressed in watts. The resistance value is frequently further qualified by reference to the maximum permissible deviation from it, known as resistance tolerance, while the power rating is often related to a maximum allowable rise in temperature expressed in centigrade. Resistors currently available range in resistance values from a fraction of an ohm to many megohms with resistance tolerances from  $\pm 20$  per cent to less than 0.1 per cent, and in power ratings ranging from as low as 1/10 watt to several hundred watts with maximum allowable temperature rise anywhere from 50° to as high as 400° centigrade. Resistors having a tolerance of less than  $\pm 5$  per cent are usually referred to as precision resistors; practically all of the film resistors are in this category as are some of the wire-wound ones. Those resistors having a specific amount of resistance which cannot be changed are known as fixed resistors, and those in which the resistance can be adjusted are known as variable resistors; the latter include rheostats and potentiometers.

In carbon-composition resistors the resistance element is made of carbon mixed with resins and pressed or moulded in the form of a solid rod; the element is enclosed in a plastic coating, usually of phenolic resin. Wire-wound resistors consist of resistance wire or ribbon wound on a ceramic tube or, in case of the smaller sizes, ceramic rod; they are coated with vitreous enamel, cement or silicone. Film resistors are made by depositing a very thin film of carbon, metal or metal oxide on a ceramic or glass cylinder or tube; the enclosures for film resistors vary considerably and include varnish, thermo-setting materials, solder-sealed ceramic jackets or glass-sealed jackets. All resistors are equipped with wire connecting leads by means of which they can be incorporated into the circuit. In addition, certain types of resistors come equipped with special mountings, including brackets and washers, and enclosures. Some resistor manufacturers purchase these special parts, including pre-cut and pre-shaped leads, others make their own.

(1) Transcript, October 2, 1962, p. 674.

(2) Same, p. 675.

On the average, the parts and materials account for just over 20 per cent of the factory selling price of the resistors manufactured in Canada; the percentage tends to be somewhat lower for film resistors than for the other two basic types. The manufacture of resistors thus tends to enhance the value of the materials used to a considerably greater extent than do most of the other manufacturing processes in the radio apparatus industry.

### Canadian Market

At the time of the public hearing, there were reported to be 15 firms engaged in the manufacture of resistors in Canada. Most of these tend to specialize in one of the basic types and make products other than resistors as well; for several, resistors account for a very small part of total sales. Together, the 15 firms that were engaged in making resistors in 1962 produced all of the three basic types of resistors used in radio and related equipment, although not always in the complete variety required by the Canadian market; certain special items, such as those for military use, are not made in Canada and, according to evidence at the public hearing, all resistor manufacturers import some types required in low volume.<sup>(1)</sup> Most of the resistors made in Canada are intended for sale through commercial channels. Only one equipment manufacturer, Northern Electric Company Limited, makes its own resistors; all of its output is for captive use and most of it is destined for incorporation into telephone equipment, which is not under review in Reference 123.

There is no record of Canadian shipments of resistors prior to 1960 and the Board did not attempt to develop an historical series in the face of reluctance on the part of several of the principal Canadian manufacturers of resistors to supply voluntarily the necessary information. Figures for more recent years published by the Dominion Bureau of Statistics show Canadian shipments of "resistors, electronic (excluding power service)" to have been valued at \$2.4 million in 1960 and \$3.9 million in 1961.<sup>(2)</sup> Although some of these are, no doubt, destined for use in equipment which is not under review in Reference 123, most of them are believed to be for uses relevant to the inquiry. Imports of resistors for radio and related applications are also not published separately being included with other equipment and components in statistical class 6167 (Appendix C, Table 6). However, a sample survey of entries under this class conducted by the Board suggests that resistors imported in 1961 for use in radio equipment were valued at less than \$800,000; of these more than two-thirds originated in the United States, with the remainder chiefly from the Netherlands.

Official statistics of the United States show exports of electronic resistors to Canada over the past four years to have averaged about 11 million units valued at \$2.9 million.<sup>(3)</sup> In view of the figures cited previously, most of these must be for electronic applications other than in radio, television and related equipment. Moreover, the resistors exported from the United States to Canada appear to consist of types

(1) Transcript, October 2, 1962, p. 696.

(2) DBS Cat. No. 43-206, 1960 and 1961, Table 5.

(3) U.S. Bureau of the Census. United States Export Statistics, Report FT 410, Part II. Schedule B number 70856.



different from those made here, as is evidenced by the fact that their average unit value has been in excess of 25¢ while that of the resistors manufactured in Canada is, according to evidence, closer to 7¢.<sup>(1)</sup> On a type for type basis, prices of composition resistors, which are used in large numbers in radio and television applications, were said to be on the average about the same in Canada as in the United States for resistors with a 10 per cent resistance tolerance, and about 25 per cent lower in Canada for resistors with a 5 per cent resistance tolerance.<sup>(2)</sup>

The lack of import competition from countries other than the United States and the Netherlands appears to be due to lack of availability of types and qualities required by the Canadian market as well as to the usual handicaps associated with off-shore procurement. For example, a spokesman for the E.I.A. testified on several occasions during the public hearing that resistors manufactured in the United Kingdom were not, on the whole, of as high a quality as those manufactured in Canada or in the United States.<sup>(3)</sup> The same spokesman also observed that manufacturers in the United Kingdom were handicapped by their inability to effect prompt deliveries, even though their prices might be much lower.<sup>(4)</sup>

Parts and Materials - With parts and materials accounting, on the average, for only a little over 20 per cent of the factory selling price of the resistors manufactured in Canada, the total annual consumption of such parts and materials has been valued at less than \$800,000 in recent years; it is estimated that considerably more than one-half, and possibly as much as 80 per cent, has been supplied by imports.

Most of the basic materials, including carbon and resins for carbon-composition and film resistors, and resistance wire and ribbon for wire-wound resistors, are at present supplied by imports. The carbon and the resins are used mostly in liquid form and include special compositions designed for resistor applications; most of these were said to be not made in Canada. The resistance wires and ribbons are also of special types designed for electrical applications; they are usually made of nickel-chromium or copper-nickel alloys and are sold under various trade-names such as "Chromel", "Copel", "Advance" or "Nichrome". Wires and ribbons of this type are apparently not manufactured in Canada, although "Nichrome" wire within the diameter range of from .005 to .204 inch is being drawn in Canada from imported rods. The phenolic resins, vitreous enamels and cements used for coating appear to be imported by some manufacturers and procured domestically by others.

Among the principal parts are ceramic tubes and rods, terminal sub-assemblies, including caps and leads, and the various mountings, including brackets, washers and enclosures. The ceramic parts appear to be all imported as none are apparently manufactured in Canada owing to their special nature and the great variety of types and sizes required; total Canadian usage in resistor applications has been estimated by a spokesman for the E.I.A. at about \$25,000. The terminal sub-assemblies are also all imported; some of the manufacturers also import the various mountings, although there is no apparent reason why most of them could not be made in Canada as they are simple metal stampings.

(1) Transcript, October 2, 1962, p. 686.

(2) Same, p. 704-705.

(3) Same, p. 697, 699, 701 and 706.

(4) Same, p. 696.



Existing Tariff Treatment

Resistors for use in radio, television and related equipment are at present classified mostly as follows:

<u>When for use in:</u>	<u>Item No.</u>	<u>Rates of Duty</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Radio and television	445d	Free	20 p.c.	30 p.c.
Phonographs and combinations	597a(2)	15 p.c.	20 p.c.	30 p.c.
Tape recorders, sound equipment, etc.	445k	15 p.c.	22½ p.c.	30 p.c.

For full wording of the relevant tariff items see Appendix A.

Most of the imported resistors under discussion are believed to be entered under tariff item 445d, although some are, no doubt, entered under the other two items and under the end-use items relating to radio equipment, such as items 440r or 696(1).

Ceramic parts at present qualify for duty-free entry as radio frequency ceramics under tariff item 445o(1), while the terminal sub-assemblies, including caps and leads, may be entered as parts under tariff item 445d. Carbon, resins and metals for carbon-composition and film resistors are classified mostly according to their nature under tariff items normally applicable, such as items 220a, 249, 316 or 711. Alloy resistance wire having a diameter of less than .005 inch is eligible for duty-free entry under tariff item 445o(3) when of a class or kind not made in Canada; it is understood that resistance wire of these dimensions is currently ruled to be of a class or kind not made in Canada. All of the other resistance wires and ribbons used are entered under tariff items normally applicable to them, such as items 350 or 355b.

Proposals and Other Representations

The Electronic Industries Association of Canada (E.I.A.) proposed that resistors as well as most of the parts and materials used in their manufacture be provided for in a separate tariff item as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
947	Resistors, fixed, not wire wound, not exceeding 10 watts rating at 250° centigrade, size of body not exceeding 3" long, main diameter $\frac{1}{2}$ "; Resistors, wire wound, fixed or adjustable, not exceeding 250 watts rating at 350° centigrade;			

(Cont'd)

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
947 (Cont'd)	Resistors, precision, not exceeding 5 watts rating at 125° centigrade and having a tolerance of plus or minus 5% or less; Resistors, variable, with elements of wire, composition or other material, not exceeding 5 watts rating at 250° centigrade; Resistors, rheostats, potentiometers, wire wound, not exceeding 50 watts* rating at 350° centigrade; Parts and materials, n.o.p. of all the foregoing	15 p.c.	20 p.c.	30 p.c.

\* Corrected (Transcript, October 2, 1962, p. 691). In the original proposal the maximum was 5 watts.

The detailed specifications were, presumably, designed to restrict the proposed item to resistors that are of principal concern to the industry, although, as the spokesman for the E.I.A. observed, the item would cover the types of resistors enumerated in it irrespective of their end-use.<sup>(1)</sup> As noted earlier, the Board deems that only those resistors destined for use in the radio, television and related equipment under review in Reference 123 are properly before it in this inquiry.

In so far as the resistors for radio and related applications are concerned, the proposal would result in the imposition of a British preferential duty of 15 p.c. on the resistors now entered duty-free under tariff item 445d, and in a reduction of  $2\frac{1}{2}$  percentage points in the most-favoured-nation rate on those entered under item 445k.

The effect of the provision for "parts and materials, n.o.p." in the proposed item is not clear; it might be interpreted as being less specific than the provisions under which the parts and materials are at present classified. Ceramic parts would continue to enter duty-free under E.I.A. proposed item 971(a); this item is discussed in greater detail in the following subsection.

There were no representations other than those of the E.I.A. relating specifically to resistors.

#### Miscellaneous Products

This subsection deals with the remaining products respecting which the Board received specific representations. Included among these

<sup>(1)</sup> Transcript, October 2, 1962, p. 687.

are phonograph needles, pick-up cartridges, microphones, headphones, tape transport mechanisms, picture tube safety shields and certain other radio and television components, as well as certain specific parts and materials used in their manufacture. Considered also are two basket provisions proposed by the Electronic Industries Association of Canada (E.I.A.) for parts and materials used in the manufacture of certain specified components.

Phonograph needles and parts - E.I.A. item 956

The function of a phonograph needle is to transfer the modulations embodied in the groove of a phonograph record to the cartridge, or pick-up, where they are converted into electrical signals; the electrical signals are subsequently amplified and converted to sound by the loudspeaker. Originally resembling what the description implies - a fairly simple, needle-shaped spike of steel - the phonograph needle of today, frequently referred to as a stylus, is a delicate device consisting usually of a minute sapphire or diamond tip mounted on a tiny metal arm. Whereas the phonograph needles formerly were fairly standard, suitable for most types of cartridges, those currently in use vary greatly in size and shape, being specifically designed for a particular type of cartridge; the types of styli run into hundreds. While the steel needles were relatively inexpensive, but had to be changed frequently, the styli in use today are often priced in excess of \$10, but are designed to give satisfactory performance for several thousand hours of playing time. The parts and materials used in the manufacture of phonograph needles include sapphire and diamond tips, needle arms or blanks, and packaging materials.

Canadian Astatic Limited, of Toronto, is understood to be the only firm in Canada engaged in the manufacture of phonograph needles. This firm, an affiliate of the Astatic Corporation, of Conneaut, Ohio, has since January, 1962 been assembling phonograph styli from parts mostly imported from the United States. Canadian Astatic makes a considerable range of types both for use with its own cartridges as well as for those of other manufacturers. The firm, whose total employment in recent years averaged under 40, also assembles phonograph cartridges and microphones; these are discussed under separate headings below.

Since October, 1951, phonograph needles have been specifically provided for in an extract from tariff item 597a(2), while the parts and materials for use in their manufacture have, since February, 1962, been covered by temporary item 597a(4), due to expire on January 31, 1966; the Board has been informed that the latter item was introduced into the Customs Tariff for the purpose of enabling Canadian Astatic Limited to commence assembly of phonograph needles in Canada. The two relevant items are reproduced below:

<u>Tariff</u> <u>Item No.</u>	<u>Present Wording</u>	<u>Present Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Ex. 597a(2)	Gramophone needles	10 p.c.	15 p.c.	30 p.c.



<u>Tariff</u> <u>Item No.</u>	<u>Present Wording</u>	<u>Present Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
597a(4)	Materials and parts for use in the manu- facture of phonograph needles (Expires 31st January, 1966)	Free	5 p.c.	30 p.c.

The E.I.A. proposed that phonograph needles be provided for in the Customs Tariff as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
956	Phonograph needles	10 p.c.	15 p.c.	30 p.c.

At the public hearing the E.I.A. suggested further that its proposed item 956 be amended by the addition of a provision for "parts, n.o.p." (1) This was said to be intended to cover parts for replacement purposes, not qualified for entry under item 597a(4) which would be retained.

In a separate submission to the Board, Canadian Astatic Limited stated:

" We support the EIA proposed item 956 covering complete phonograph needles, although of course 956 does not represent any change from existing tariff item Ex. 597a(2). Although the existing and proposed rates of 10% B.P. and 15% M.F.N. on phonograph needles are 5% lower than those applicable to phonographs under 597a(2), we understand that the reduction forms part of the GATT agreement and in view of this fact we are prepared to accept them as adequate under present conditions. This is on the understanding, of course, that tariff item 597a(4) remains unchanged. In support of this, we mention in passing that the major components of needles (diamond and sapphire tips, beryllium copper) are not available in Canada." (2)

Information obtained by the Board confirms that, with the exception of packaging materials, the Canadian manufacturer of phonograph needles imports all of the parts and materials from the United States. Together, purchased parts and materials account for by far the largest portion of direct factory cost of the phonograph needles assembled in Canada. From this it is evident that the effective protection on the assembly operation is considerably in excess of the existing and proposed rates of duty.

(1) Transcript, October 3, 1962, p. 771.

(2) Same, p. 773-774.

Pick-up cartridges and parts - E.I.A. items 953, 970(b)

Pick-up cartridges, sometimes referred to simply as pick-ups or reproducers, convert the modulations embodied in the groove of a phonograph record into electrical signals. They consist, essentially, of a conversion device, known as the transducer, enclosed in a plastic or aluminum housing, with provisions for accommodating one or more styli and for attachment to the pick-up, or tone arm. The principal types of pick-up cartridges currently in use include, in the probable order of importance, ceramic, crystal and magnetic cartridges. In ceramic cartridges the transducers are made of piezoelectric materials, such as barium titanate and lead titanate zirconate; crystal pick-ups utilize Rochelle salt crystals, while in magnetic cartridges the conversion is achieved by the motion of a coil or other conductor in a magnetic field. Within each of the three basic types of cartridges, there is a considerable variety of models, with each of the principal manufacturers of phonographs utilizing a different design; the number of different cartridges currently on the market runs into hundreds. Parts used in the manufacture of pick-up cartridges include transducers, housings, terminal pins or lugs, and various brackets, washers, springs, screws and knobs.

Pick-up cartridges have, since 1938, been assembled in Canada by Canadian Astatic Limited, of Toronto, the only known Canadian manufacturer. The firm offers for sale a wide range of models both of its own design and of that of other manufacturers. With the exception of the packaging for retail distribution, all of the parts are understood to be imported from the United States; together, the parts account for by far the greater part of direct factory cost.

At present, pick-up cartridges are entered as complete parts of phonographs under tariff item 597a(2) at 15 p.c., B.P. and 20 p.c., M.F.N., while parts for use in the manufacture of pick-ups are entitled to duty-free entry under item 4450(1) and materials under item 4450(4). The relevant tariff items and their histories are given in Appendix A.

The two items proposed by the E.I.A. for pick-up cartridges and the parts used in their manufacture are as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
953	Pickup cartridges, for use with the goods enumerated in <u>[E.I.A.]</u> tariff items 925 and 926*	15 p.c.	20 p.c.	30 p.c.
970(b)	Parts for pickup cartridges, including cartridge housings, terminals, chucks, mounting pads and fasteners, for use in the manufacture of the goods enumerated in tariff item 953;			
	All of the foregoing when of a class or kind not made in Canada	Free	Free	30 p.c.

\* For full wording of E.I.A. proposed items 925 and 926 see pages 54 and 55.



At the public hearing, the spokesman for the E.I.A. suggested further that proposed item 953 be amended by the addition of a provision for "parts, n.o.p." to cover those parts which may not qualify for entry under proposed item 970(b).<sup>(1)</sup>

The E.I.A. proposal was supported by Canadian Astatic Limited, with the further suggestion that the end-use restriction in proposed item 953 and the enumeration of parts in proposed item 970(b) can be deleted as redundant.<sup>(2)</sup>

The proposals before the Board would leave the existing rates of duty on pick-up cartridges unchanged, extending them also to any parts, now entered duty-free under item 4450(1), which might be ruled to be of a class or kind made in Canada. Parts deemed to be of a class or kind not made would continue to be entered duty-free, as they are now under item 4450(1). However, it should be noted that the E.I.A. has also proposed an eo nomine provision for piezoelectric ceramic elements used in ceramic cartridges which, presumably, would take precedence over the two proposed items. This provision, embodied in E.I.A. proposed item 967, envisages rates of 15 p.c., B.P. and 20 p.c., M.F.N. without a class-or-kind qualification; it is discussed in detail later in this section.

With imported parts accounting for the largest part of the direct factory cost of the pick-up cartridges being assembled in Canada, the effective protection on the assembly operation is substantially greater than the existing rates of duty. With respect to the proposed introduction of a class-or-kind criterion for the classification of parts, the practicability of so classifying some of the pick-up parts, such as washers, springs, screws or knobs, is subject to some doubt.

#### Microphones and parts - E.I.A. items 961, 970(c)

Microphones convert sound waves into electrical energy. They are used widely in radio and television broadcasting, radio and telephone communication and in sound systems, such as public address or inter-communication systems. The principal types of microphones currently in use include dynamic, crystal and ceramic, with dynamic microphones predominating, particularly in broadcasting and sound system applications. Dynamic microphones utilize a diaphragm which, when actuated by sound waves, moves and produces electric current in a coil moving in a magnetic field. In crystal and ceramic microphones, transducers in the form of Rochelle salt crystals or piezoelectric ceramic elements are used to perform the conversion. Parts used in the manufacture of microphones include diaphragms, crystal and ceramic elements, coils, magnets and magnet structures, housings including grills, switches, terminals and connectors. Some microphones come equipped with handles or stands; for others adjustable desk or floor stands are available as an accessory.

Canadian Astatic Limited is the only known manufacturer of microphones in Canada. The firm has been assembling the microphones at its Toronto plant since 1938 mostly from parts imported from the United States; purchased parts account for by far the largest portion of direct factory cost of microphones which it assembles. The firm offers for

<sup>(1)</sup> Transcript, October 3, 1962, p. 770-771.

<sup>(2)</sup> Same, p. 774.



sale some twenty basic designs of microphones, mostly of the type suitable for broadcasting, public address and similar applications; the designs are identical with those produced by the parent company in the United States and range in suggested retail price from under \$10 to over \$200. The firm also makes small desk stands in Canada, but it does not make floor stands at the present time.

Microphones for use in conjunction with radio and television equipment, such as those for use in radio and television studios, are at present entered under tariff item 445d, duty-free under the British Preferential Tariff and at a rate of 20 p.c. under the Most-Favoured-Nation Tariff; there are indications that about 70 per cent of the imports, by value, are entered under this item. Microphones destined for incorporation in sound systems, such as public address systems, are now dutiable under item 445k at 15 p.c., B.P. and 22½ p.c., M.F.N. Parts are now classified for customs purposes under the same tariff item as the microphones for which they are destined, while microphone stands are classified according to material, unless they are equipped with a power cord in which case they may be entered under item 445k.

The E.I.A. proposed the following tariff items providing for microphones, including microphone stands, and for parts used in their manufacture:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
961	Microphones and stands therefor	15 p.c.	22½ p.c.	30 p.c.
970(c)	Parts of microphones, including microphone cartridges, microphone cartridge parts, magnet structures, pole pieces, diaphragms and grilles, terminals and connectors, unfinished cases and stands;			
	All of the foregoing when of a class or kind not made in Canada	Free	Free	30 p.c.

A spokesman for the E.I.A. suggested at the public hearing that proposed item 961 be expanded to include a provision for "parts, n.o.p."<sup>(1)</sup> This was intended to allow entry under the item of those parts that might be ruled to be of a class or kind made in Canada and, therefore, ineligible for entry under proposed item 970(c).

The E.I.A. proposals were supported by Canadian Astatic Limited, with the further suggestion that imports of parts under proposed item 970(c) be restricted only to those for use in the manufacture of microphones.

The effect of the E.I.A. proposals would be to leave the rates of duty on most of the imported microphones unchanged, while removing the British preferential and most-favoured-nation duties on those parts

(1) Transcript, October 3, 1962, p. 772.

deemed to be of a class or kind not made in Canada. However, as in the case of pick-up cartridges, piezoelectric ceramic elements used in microphones would be excepted from these provisions, being more specifically provided for in proposed item 967, discussed later in this section.

Since imported parts account for the largest portion of the direct factory cost of the microphones assembled in Canada, the effective protection on the assembly operation is substantially in excess of the existing rates of duty.

### Headphones and parts

Headphones, also known as earphones or headsets, consist of one or more cup-shaped loudspeakers attached to an adjustable headband, with or without a boom-mounted microphone. Commonly used for many years in conjunction with radio and telephone equipment, headphones have come to be increasingly used also with dictating equipment, tape recorders such as those used in language training or speech therapy, and in stereophonic high-fidelity applications.

There are at present at least three firms in Canada engaged in the manufacture of headphones: Canadian Astatic Limited and Sharpe Instruments of Canada Limited, of Toronto, and Northern Electric Company Limited, of Montreal. The nature of the manufacturing process varies greatly from one firm to another, ranging from a mere assembly of imported components with very little Canadian content to an almost entirely Canadian-made product. Taken together, the three manufacturers make all of the principal types of headphones, with the exception of earphones such as those used with dictating equipment and transistor radios. Canadian shipments of headphones are not reported, nor are imports. However, apart from the three known manufacturers, several other firms offer headphones for sale in Canada, most of which must be imported.

Headphones are at present classified for customs purposes under several tariff items, depending on the purpose for which they are destined; the principal of these are listed below:

<u>When for use with:</u>	<u>Item No.</u>	<u>Rates of Duty</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
Telegraph equipment	445c(i)	Free	20 p.c.	30 p.c.
Telephone equipment	445c(ii)	10 p.c.	22½ p.c.	30 p.c.
Radio and related equipment	445d	Free	20 p.c.	30 p.c.
Other electrical equipment, including tape recorders and stereo hi-fi equipment	445k	15 p.c.	22½ p.c.	30 p.c.
Hearing aids for the deaf	482	Free	Free	Free

Canadian Astatic Limited requested the establishment of two tariff items, one providing for headphones and parts thereof, not otherwise provided for, at rates of 15 p.c., B.P., 22½ p.c., M.F.N. and 30 p.c. General, and the other for materials and parts of a class or kind not made in Canada, for use in the manufacture of headphones, with duty-free entry under all three tariffs. In support of its proposal the company stated:



"... The usual concept of headphones goes back to the early days of radio when crystal receiving sets were common, but of course headphones for this use are largely obsolete today with speakers in common use. However, there is a large potential market for headphones for the following applications: In language teaching and speech therapy laboratories where each pupil is provided a pair of headphones and, in specially arranged headphones for use in 'stereo' listening to both records and FM multiplex broadcasting.

" In view of this large potential market, we believe it would be prudent to make a separate tariff provision for headphones. Headphones comprise essentially the same mechanical components as do microphones, and descriptions for headphones could properly follow the format of the suggested EIA item 961 [microphones], as to complete headphones, and EIA item 970(c) [parts for microphones] as to parts. ..."(1)

The proposal would make all headphones, other than those qualified for entry under item 482, subject to rates of 15 p.c., B.P. and 22½ p.c., M.F.N., which are the rates of item 445k. Its principal effect would be the imposition of a duty on headphones for use with telegraph and radio equipment imported under the British Preferential Tariff, which now enter duty-free. The proposal would also provide duty-free entry for parts of a class or kind not made in Canada; at present these are dutiable at the same rates as the finished product.

In view of the fact that headphones continue to be used chiefly in conjunction with equipment other than that which is under review in this Report, and are entered mostly under tariff items other than those before the Board in Reference 123, no recommendation respecting headphones is made in the present Report.

#### Tape transport mechanisms

Tape transport mechanisms, often referred to simply as tape transports, comprise the essential mechanical and electrical components and controls of tape recorders which are responsible for moving the tape during recording or play-back operations. More specifically, tape transports normally include the following parts: a frame or chassis, one or more motors, feed and take-up reel sub-assemblies, mechanical and electrical controls, indexing counter, gear or belt-drive couplings, connector and switching blocks, and magnetic heads including record, play-back and erase heads. Tape transports do not, as a rule, contain recording and play-back pre-amplifiers and amplifiers, nor any other sub-assemblies containing active components such as tubes or transistors.

Tape transport mechanisms are being offered for sale as such for professional and home entertainment use; they can be used in conjunction with independent amplifier and speaker systems, or they can be incorporated into high-fidelity and stereophonic high-fidelity sets most of which are designed to accommodate them.

At present, tape transports are dutiable under tariff item 445k, at 15 p.c., B.P. and 22½ p.c., M.F.N. There is no information

(1) Transcript, October 3, 1962, p. 775.



concerning the value of imports as they are classified for statistical purposes together with complete tape recorders.

The Board received representations from several Canadian manufacturers, namely Canadian Marconi Company, Dominion Electrohome Industries Limited, Fleetwood Corporation, Philips Electronic Industries Ltd. and RCA Victor Company Ltd., requesting the establishment of an item providing duty-free entry under the British Preferential and the Most-Favoured-Nation Tariffs for tape transport mechanisms on the grounds that the volume of business in Canada does not justify the cost of tooling, and that duty-free entry would promote the manufacture of complete tape recorders in Canada.

Under the E.I.A. proposals tape recorders would be dutiable at 15 p.c., B.P. and 20 p.c., M.F.N. With tape transports accounting for something in the order of 70 per cent of the factory cost of complete tape recorders, their duty-free entry would yield effective protection on the assembly operation well in excess of 50 per cent ad valorem. As noted in Section II, tape recorders have not been manufactured in Canada in significant quantities up to now.

#### Picture tube safety shields

Their purpose is to provide a transparent shield in front of a television picture tube to prevent glass fragments from flying forward in front of the set in the event that the picture tube explodes. Most of those currently in use are made of sheet or plate glass and are either flat or bent to follow the curvature of the picture tube screen. The flat safety shields are normally mounted at the front of the television cabinet and form a part of it; they are usually installed by the manufacturer of the television set during assembly. Some of the bent, or contoured, safety shields are also separately mounted, while others are bonded or laminated directly to the face-plate of the picture tube by means of synthetic resins; the bonded, or twin-panel, picture tubes are normally supplied in this form by the picture tube manufacturers themselves. In addition to glass safety shields, there are also shields made of clear, contoured plastic; these are used almost exclusively in portable sets where their lighter weight is an advantage.

There are at least two glass manufacturers in Canada making flat safety shields, one of whom also makes bent safety shields for separate installation and is capable of making those for bonding as well. Together, the two Canadian manufacturers are currently supplying nearly all of the flat shields and about 70 per cent of the bent shields for separate insertion. Shields for bonding are understood to be at present supplied entirely from imports, although at one time the one Canadian firm with the capability to make them was selling them to Canadian manufacturers of picture tubes.

Picture tube safety shields for insertion into cabinets are at present classified as parts of television receiving sets under tariff item 445d, duty-free under the British Preferential Tariff and at a rate of 20 p.c., under the Most-Favoured-Nation Tariff. Shields for bonding have been allowed under tariff item 445s, which provides duty-free entry for articles of glass for use in the manufacture of cathode-ray tubes for television receiving sets.

Four Canadian manufacturers of television receiving sets, namely Canadian Marconi Company, Fleetwood Corporation, Philips Electronics Industries Ltd. and RCA Victor Company Ltd., made representations to the Board which would have the effect of providing duty-free entry for bent safety shields for use in the manufacture of television receivers when of a class or kind not made in Canada. The representations emphasized that the provision was intended to cover those safety shields which are meant for inclusion with the television cabinet, rather than those intended for fusion to the picture tube.

As noted earlier, at least one firm in Canada is making bent glass safety shields for separate installation and is supplying them to Canadian manufacturers of television receiving sets; this firm has informed the Board that it is capable of manufacturing any shape or size, providing the quantity demanded justifies tooling. However, there are indications that this method of protection against explosion is being gradually superseded by others, such as the so-called integral implosion protection which employs resin bonded metal around the periphery of the picture tube, rather than a separate or bonded safety shield, to prevent explosion and to minimize its effects should it occur. It has been estimated that of the television receiving sets produced in Canada during 1964 less than 20 per cent will be equipped with safety shields separately mounted in the cabinet.

Miscellaneous radio and TV components - E.I.A. items 930, 930a, 930b, 966, 968, 969(b), 969(c)

The E.I.A. made specific proposals respecting tariff treatment of a number of minor radio and television components, and of parts and materials used in their manufacture; these are reproduced in full on the following two pages, together with an indication of the principal rates and tariff items currently applicable. Whatever changes in rates would result from these proposals would, in most cases, involve increases in duties on components under the British Preferential Tariff and reduction in duties on parts used in their manufacture.

All of the five categories of products enumerated in proposed item 930 are being manufactured in Canada.<sup>(1)</sup> Although the exact portion of the Canadian market for these products that is supplied by imports is not known, it was thought to be very small.<sup>(2)</sup> It will be noted that imports under proposed item 930 would be restricted to those destined for use in the manufacture of the complete equipment enumerated in E.I.A. proposed items 925 and 926.<sup>(3)</sup> For most of the products covered by these two items the proposed rates are the same as those in item 930, and both items have provision for "parts, n.o.p." under which the components enumerated in proposed item 930 could be entered. The need for making a specific provision for these products is thus not at all obvious, nor was it in any way justified.

Although the stated intention of the E.I.A. was that proposed item 930a should attract all of the parts used in the manufacture of the goods specified in item 930, it would cover only those parts which are

(1) Transcript, October 1, 1962, p. 626-627.

(2) Same, p. 627.

(3) For full wording of E.I.A. items 925 and 926 see pages 54 and 55.



E. I. A. PROPOSED ITEM				EXISTING ITEM <sup>(a)</sup>		
No.	Description	B. P. p.c.	M. F. N. ad val.	B. P. p.c.	M. F. N. ad val.	No.
930	(1) Electrical filters with inductors using other than laminated iron cores	15	20	15	22½	445k
	(2) Electron beam deflection yokes			Free	20	445d
	(3) Horizontal deflection transformers			15	22½	445f
	(4) Inductors using other than laminated iron cores			( 15 ( Free	22½ 20	445k 445d
	(5) Permeability radio tuner sub-assemblies for selecting transmitted signals either AM or FM			Free	20	445d
	All of the foregoing when for use in the manufacture of goods enumerated in tariff items 925 and 926 <sup>(b)</sup>					
930a	Parts, n.o.p., for use in the manufacture of goods enumerated in tariff item 930	7½	12½	( Free ( 15 ( 15	20 22½ 22½	445d 445k 445f
930b	Materials, n.o.p., for use in the manufacture of goods enumerated in tariff items 930 and 930a	5	7½	Many different items and rates		
966	(a) Dials or scales of glass, metal or plastic, finished or unfinished, for use in the manufacture of goods enumerated in tariff item 926 <sup>(b)</sup>	15	20	( Free ( Free	Free 20	445o(1) 445d
	(b) Escutcheons, bezels or mouldings of metal or plastic, finished or unfinished, extruded or pressed, for use in the manufacture of goods enumerated in tariff item 926 <sup>(b)</sup>			( Free ( Free ( 15	Free 20 20	445o(3) 445d 908
968	(a) Tube shields of metal or metallized non-metal for use with the goods enumerated in tariff items 925 and 926 <sup>(b)</sup>	Free	Free	Free	Free	445o(1)



E.I.A. PROPOSED ITEM				EXISTING ITEM <sup>(a)</sup>		
No.	Description	B.P.	M.F.N.	B.P.	M.F.N.	No.
		p.c.	ad val.	p.c.	ad val.	
968	(b) Motors and gears for automatic tuning, for use with the goods enumerated in tariff items 925 and 926 <sup>(b)</sup>			Free	Free	445o(1)
	(c) Escutcheons, bezels or mouldings of metal or plastic, finished or unfinished, made by the injection, compression or die cast moulding process, n.o.p., for use in the manufacture of goods enumerated in tariff item 926 <sup>(b)</sup>			( Free ( Free	Free 20	445o(3) 445d
	(d) Stamped metal pulleys not exceeding five inches in outside diameter and one half inch in width, for use in the manufacture of the goods enumerated in tariff item 926 <sup>(b)</sup>			Free	20	445d
	All of the foregoing when of a class or kind not made in Canada					
969	(b) Gears for use in the manufacture of goods enumerated in tariff items 930 and 942 [capacitors]	Free	Free	( Free ( Free ( 15	Free 20 22½	445o(1) 445d 445k
	(c) Moulded plastic parts for use in the manufacture of the goods enumerated in tariff item 930			Free	20	445d
	All of the foregoing when of a class or kind not made in Canada					

(a) Full wording and history of most of the existing items are given in Appendix A.

(b) For full wording of E.I.A. proposed items 925 and 926 see pages 54 and 55.

not specifically mentioned in the Customs Tariff. Many of the major parts are specifically provided for in other items proposed by the E.I.A.; coverage of proposed item 930a would thus likely be restricted mostly to various minor parts.

The provisions of proposed item 930b parallel those of item 930a. Again, the intention of the E.I.A. was that the item should cover all of the materials used in the manufacture of the components specified in proposed item 930 and of the parts for such components covered by item 930a. However, because of the phrase "n.o.p.", the net effect of the proposal is difficult to ascertain.

A number of firms in Canada manufacture the dials, scales, escutcheons and bezels enumerated in proposed item 966; a spokesman for Canadian manufacturers estimated that together these firms supply about 50 per cent of Canadian requirements, with the remainder imported chiefly from the United States.<sup>(1)</sup> It will be noted that imports under these two proposed items would be restricted to those destined for use in the equipment enumerated in E.I.A. proposed item 926 (see page 55). This latter item bears the same rates of duty as item 966 and has a provision for "parts, n.o.p." under which the products covered in item 966 could be entered if no other provision is made for them in the Customs Tariff.

All of the provisions embodied in proposed items 968 and 969 are qualified by the phrase "when of a class or kind not made in Canada." Although there appears to be no technical reason why most of the products covered by these provisions could not be manufactured in Canada, according to evidence most of them are currently not made, presumably because the great variety and the relatively small Canadian requirements do not justify the cost of tooling.<sup>(2)</sup> On the other hand, most of these products are relatively inexpensive, accounting on the whole for a very small portion of the total manufacturing cost of the radio apparatus for which they are destined. Also, some doubt was expressed about the practicability of applying the class-or-kind criterion to the goods provided for in these items.<sup>(3)</sup>

#### Rochelle salt elements - E.I.A. item 969(a)

The E.I.A. proposed the following item to provide for rochelle salt elements or ceramic ware for certain applications:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
969(a)	Rochelle salt elements or ceramic ware (or body) for piezoelectric transducer applications, for use in the manufacture of the goods enumerated in <u>E.I.A.</u> tariff items 953 and 970(c)			
	All of the foregoing when of a class or kind not made in Canada	Free	Free	30 p.c.

(1) Transcript, October 2, 1962, p. 642-643, 645 and 650-651.

(2) Same, p. 648 and October 3, 1962, p. 837 and 839.

(3) Same, p. 845.

Proposed items 953 and 970(c) referred to in the above item provide for pick-up cartridges and parts of microphones, respectively. Provision has been made by the E.I.A. in other proposed items, namely items 970(b) and 973, for duty-free entry of parts used in the manufacture of pick-up cartridges and microphone parts. To this extent, separate provision for rochelle salt elements in item 696(a) would appear to be unnecessary. This conclusion was concurred with by the spokesman for the E.I.A. (1)

Piezoelectric ceramic elements and materials - E.I.A. items 967, 970(d)

Piezoelectric ceramic elements derive their designation from a phenomenon known as the piezoelectric effect; this involves the generation of an electric charge in a substance by the application of mechanical force, or vice versa. The elements are used chiefly in transducer applications as, for example, in phonograph pick-up cartridges, microphones and underwater listening devices, such as hydrophones. Most of the piezoelectric ceramic elements currently in use are made of barium carbonate or lead titanate zirconate compounds, fired at high temperatures. The principal raw materials used in the manufacture of these ceramic elements include barium carbonate, titanium dioxide, lead titanate and lead zirconate. Together, materials account for less than 10 per cent of the total manufacturing cost of the piezoelectric elements destined for transducer applications.

At the time of the public hearing, Titania Electric Corporation of Canada Limited, of Gananoque, Ontario, was the only firm in Canada engaged in the manufacture of piezoelectric ceramic elements, with most of its output destined for incorporation into hydrophones, and for experimental and research purposes. Since then, another company, Almax Ceramic Industries Ltd., also of Gananoque, has entered the field. According to information made available to the Board at the time of the public hearing, of the materials used in making the piezoelectric elements some, such as titanium dioxide, were being procured entirely in Canada while others, such as barium carbonate and lead titanate zirconate compounds, were being imported, chiefly from the United States.

At present, the piezoelectric ceramic elements destined for use in pick-up cartridges are entitled to duty-free entry under the provision for parts for pick-ups in item 445o(1), while those for other uses are entered mostly under tariff items 445k (15 p.c., B.P. and 22½ p.c., M.F.N.) or 445d (free, B.P. and 20 p.c., M.F.N.). Materials for use in the manufacture of piezoelectric elements destined for use in pick-up cartridges would, at present, be admitted duty-free under item 445o(4), while those for other uses would be classified according to material, mostly under tariff item 208t (duty-free, B.P. and 15 p.c., M.F.N.).

The E.I.A. proposed the establishment of the following two items providing for piezoelectric ceramic elements and for the materials used in their manufacture:

(1) Transcript, October 3, 1962, p. 842.



<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
967	Piezoelectric ceramic elements	15 p.c.	20 p.c.	30 p.c.
970(d)	Materials in powder or liquid form for use in the manufacture of the goods enumerated in <u>E.I.A.</u> tariff item 967			
	All of the foregoing when of a class or kind not made in Canada	Free	Free	30 p.c.

The principal effect of these proposals would be the imposition of duties on piezoelectric ceramic elements destined for use in pick-up cartridges, and on those now entered under the British Preferential Tariff in item 445d, all of which now qualify for duty-free entry; in addition, there would be a reduction of  $2\frac{1}{2}$  percentage points in the most-favoured-nation duty on elements imported under tariff item 445k. There is no evidence of piezoelectric ceramic elements being imported from British preferential countries under tariff item 445d. The one Canadian manufacturer of pick-up cartridges and of microphones has been importing the elements which he uses from the United States, duty-free under item 445o(1) for pick-up cartridges and at a duty of  $22\frac{1}{2}$  p.c. under item 445k for microphones. The E.I.A. proposal would tend to increase his total manufacturing cost by less than 10 per cent in case of the pick-up cartridges, while reducing by an insignificant amount the manufacturing cost of microphones. The operations of the one Canadian manufacturer are discussed in greater detail under the headings "Pick-up cartridges and parts" and "Microphones and parts" earlier in this section.

With respect to materials, the main effect of the proposal would be the removal of the 15 p.c. most-favoured-nation duty on those materials which are now entered under tariff item 208t, or are dutiable under other items, and which would be considered as being of a class or kind not made in Canada. Materials deemed to be of a class or kind made in Canada would be dutiable according to their nature. As noted earlier, materials account on the average for less than 10 per cent of the total factory cost of the piezoelectric ceramic elements produced in Canada.

#### Powdered iron and ferrite cores - E.I.A. item 972

In radio and related applications, the principal uses of powdered iron and ferrite cores are in filters, inductors, transformers, including horizontal deflection, or fly-back, transformers, deflection yokes, permeability tuners, and antennas. The powdered iron cores are made by mixing powdered iron particles with a plastic or ceramic binding and moulding them into the desired shape. Ferrite cores are made of chemical compounds containing oxides of several metals, such as nickel, manganese, zinc or magnesium; the quantities of the various oxides in the compound must be carefully controlled to achieve the precise crystal structure necessary to endow the ferrite core with the required performance characteristics. The compounds are moulded into desired shapes and fired at high temperatures. The ferrite cores are, on the whole, about twice as expensive as corresponding powdered iron cores. However, they

possess certain advantages which make them particularly suited for certain applications; included among the advantages are higher permeability, lower dissipation of power and smaller size.

Powdered iron cores for radio, television and related applications are manufactured in Canada by Neosid (Canada) Limited, of Toronto. The company at present supplies more than three-quarters of the total Canadian requirements for powdered iron cores used in radio applications, estimated at close to \$250,000 annually.

Neosid (Canada) Limited is also the only firm in Canada manufacturing ferrite cores for sale to others. Its output has up to now been confined chiefly to the smaller sizes, such as those for permeability tuners. At present, the firm supplies substantially less than one-half of total Canadian requirements for ferrite cores for radio applications, estimated at between \$500,000 and \$750,000 annually; however, its share of the market is understood to have been increasing in recent years. Imports are said to come principally from the United States, but also from the United Kingdom, the Netherlands and West Germany.

According to information obtained by the Board subsequent to the public hearing, the various materials, such as powdered iron, phenolic resin used as the binder, and the various metal oxides used to make the ferrite cores, are not available in Canada in the qualities required for the manufacture of powdered iron and ferrite cores. They are being imported mostly from the United Kingdom and the United States.

At present, powdered iron and ferrite cores destined for radio, television and related equipment or for phonographs are entitled to duty-free entry under the provisions for "High frequency iron cores with or without inserts moulded therein" and for "Radio frequency ceramics" in item 445o(1). Those destined for use in transformers are classifiable under tariff item 445f and those for filters and inductors, under item 445k; both of these items bear rates of 15 p.c., B.P. and 22½ p.c., M.F.N. The materials used in the manufacture of the ferrite and powdered iron cores destined for incorporation in radio, television and related equipment or phonographs now qualify for duty-free entry under tariff item 445o(4), while those for cores intended for other uses are classifiable according to material.

The E.I.A.'s proposed item for powdered iron and ferrite cores is as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
972	Electronic ferrite cores, electronic iron cores, including plain, hollow, threaded, sleeve, toroidal, cup, tuning, antenna, yoke, and fly back cores, and ferrite coil forms, iron core forms, cores with inserts			

(Cont'd)



<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
972				
(Cont'd)	All of the foregoing:			
	(1) When of a class or kind not made in Canada	Free	Free	30 p.c.
	(2) When of a class or kind made in Canada	10 p.c.	17½ p.c.	30 p.c.

In addition, in proposed item 973, the E.I.A. makes provision for duty-free entry under the British Preferential and Most-Favoured-Nation Tariffs for materials and parts used in the manufacture of the goods enumerated in, among others, proposed item 972; this proposal is considered later in this section.

The proposal embodied in E.I.A. item 972 would have the effect of imposing duties on powdered iron and ferrite cores for radio, television and phonograph applications that may be ruled as being of a class or kind made in Canada; on cores now entered under item 445f or 445k, the proposal would result in removal of duties to the extent that the cores might be ruled as being of a class or kind not made in Canada, and in reductions, generally in the order of 5 percentage points in duties on those ruled to be made.

Doubt was expressed in the course of the public hearing about the feasibility of classifying the powdered iron and ferrite cores on the basis of whether or not they are made in Canada. There appears to be a considerable variety of types and sizes and, apart from these, performance characteristics, given by electrical parameters, were said to be at least equally important. The difficulties that this might pose in the administration of the proposed provision were acknowledged by the spokesman for the industry.<sup>(1)</sup>

#### Materials and parts for record changers - E.I.A. item 974

The E.I.A. proposed the following item providing specifically for the materials and parts used in the manufacture of automatic record changers:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
974	Materials and parts, not including motors, for use in the manufacture of automatic record changers	Free	Free	30 p.c.

The proposed item would, as far as parts and materials for record changers are concerned, continue unchanged the provisions embodied in existing item 445o(4) under which the parts and materials are now classified.

(1) Transcript, October 3, 1962, p. 832-833.



Parts and materials, including motors, account for between 50 and 65 per cent of the total factory cost of the automatic record changers manufactured in Canada. The motors, now dutiable under tariff item 445g at 15 p.c., B.P. and 22½ p.c., M.F.N., account for a substantial part of the total material cost; they were said to be essentially of the same type as the motors for automatic tuning which now qualify for duty-free entry under tariff item 445o(1). Practically all of the other parts and materials used in the manufacture of record changers have in the past been imported. However, the Board understands that Canadian production of some of these parts is under active consideration.

The automatic record changers themselves were the subject of the Board's interim report under Reference 123, dated October 20, 1959. (1) They have been classified, since June 21, 1961, under tariff item 445o(2), at rates of 7½ p.c., under both the British Preferential and the Most-Favoured-Nation Tariffs.

Miscellaneous specified parts and materials - E.I.A. item 971

The relevant provision proposed by the E.I.A. for certain specified parts and materials is as follows:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
971	(a) Acid or alkali free super or machine calendered kraft tissue not exceeding .010 inches in thickness; cellulose acetate not exceeding .010 inches in thickness; ceramic ware (or body) for capacitor applications; coil forms and collars with or without inserts, metallized or not; etched aluminum foil; polyester film not exceeding .010 inches in thickness; polystyrene film not exceeding .010 inches in thickness; radio frequency ceramic dielectrics; raw low loss mica; sheets and punchings of low loss mica; shield cans, metal or metallized non-metal; tantalum foil; textile fabrics coated with aluminum;			

(Cont'd)

(1) The Tariff Board. Automatic Record Changers. Reference 123 (part). Ottawa, Queen's Printer, 1959 (Cat. No. FT4-123/1).

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
971 (Cont'd)	(b) Ceramic, steatite, alumina or cordierite parts, with or without metal inserts, metallized or not, including insulators, bushings, rotors, stators, stator mountings, rotor shafts, couplers and insulators			
	All of the foregoing when of a class or kind not made in Canada	Free	Free	30 p.c.

As proposed, the provision would attract the products enumerated in it irrespective of whether they were being imported for use in the manufacture of the equipment and components under review, or for any other purpose. At the public hearing, the spokesman for the E.I.A. agreed that the possibility of restricting the item to importations by manufacturers within the industry ought to be explored;<sup>(1)</sup> however, the Association has not been able to make a specific proposal.

As far as the radio apparatus industry is concerned, the parts and materials enumerated in part (a) of the proposed item are used chiefly in the manufacture of components, such as transformers, capacitors, resistors, filters or inductors. Most of these now qualify for duty-free entry under tariff items 4450(1) or 4450(3), the principal exceptions being cellulose acetate, polyester and polystyrene films, and tantalum foil. Cellulose acetate film is at present dutiable at 15 p.c. under item 913 or is duty-free under item 912 if not less than 6 inches in width. The polyester and polystyrene films are at present dutiable under item 906e at 15 p.c., while the tantalum foil is entered under item 711 at 15 p.c., B.P. and 20 p.c., M.F.N.

The etched aluminum foil and textile fabrics coated with aluminum are now entered under item 4450(3) only if they are of a class or kind not made in Canada. The other parts and materials qualify for entry under item 4450(1), irrespective of whether they are or are not made in Canada. It appears from evidence before the Board that most of the products described in part (a) of the proposed item are either not made in Canada at all, or are not made in the specifications or qualities required by the radio apparatus industry. The only known exception are ceramic dielectric bodies for capacitors, which are made in Canada in limited quantities. Nevertheless, there is no doubt that the determination of the status of some of these products might pose difficulties, especially when it would involve differentiation based on intangible factors, such as some of the electrical parameters.

The products covered in part (b) of the proposed item are used in a variety of radio applications, chiefly because of their insulating properties; they are also used on a large scale in other electrical

<sup>(1)</sup> Transcript, October 3, 1962, p. 836.

applications, which are outside of the scope of this Reference. Although some of these may at present be entered duty-free under tariff item 445o(1), or as parts under items 445d (free, B.P. and 20 p.c., M.F.N.) or 445k (15 p.c., B.P., 22½ p.c., M.F.N.), most are very likely classified under item 445h. This item provides for electric insulators of all kinds with rates of 15 p.c., B.P. and 22½ p.c., M.F.N. and is not before the Board in this Reference, nor is it considered "relevant to an adequate inquiry".

Miscellaneous non-specified parts and materials - E.I.A. item 973

The E.I.A. proposed the following basket provision which would provide for parts and materials used in the manufacture of products covered by several of the other proposed items:

<u>E.I.A.</u> <u>Item No.</u>	<u>Proposed Wording</u>	<u>Proposed Rates</u>		
		<u>B.P.</u>	<u>M.F.N.</u>	<u>Gen.</u>
973	Materials and parts for use in the manufacture of the goods enumerated in <u>E.I.A.</u> tariff items 968, 969, 970, 971 and 972	Free	Free	30 p.c.

Of the items mentioned in the above provision, items 968 and 969 provide for certain miscellaneous radio and television components, when of a class or kind not made in Canada; they are reproduced in full on pages 126 and 127. Item 970 provides for parts for loudspeaker diaphragms, pick-up cartridges and microphones, and for materials used in making piezoelectric ceramic elements, also only when of a class or kind not made in Canada. Item 971, discussed immediately above, provides for certain specified parts and materials of a class or kind not made in Canada and item 972 for ferrite and iron cores both of a class or kind made and not made. Thus, for the most part, the proposed item would be restricted to materials and parts imported for use in making products which are ruled to be of a class or kind not made in Canada. In explaining the provision, the spokesman for the E.I.A. stated that the intent was "simply to make it possible in the future for the Canadian components manufacturers to undertake future manufacture of those goods named in those five items".(1)

Although some of the parts and materials that would qualify for entry under E.I.A. item 973 are at present being imported duty-free under items 445o(1) or 445o(4), others are dutiable at different rates under many different tariff items. The net effect of the proposed provision is, therefore, difficult to ascertain, and so is its economic significance.

(1) Transcript, October 3, 1962, p. 850-851.











SUMMARY AND CONCLUSIONS

This inquiry deals with radio, television and related products, and with the components and materials used in their manufacture. The complete equipment under review ranges in complexity from the relatively simple, commonplace household radio or television receivers to the more sophisticated microwave communication equipment and telemetry instrumentation for earth satellites. The principal components which are considered include electron tubes, transistors and other semiconductor devices, transformers, loudspeakers, capacitors and resistors. Most of the complete equipment and components are now entered duty-free from British preferential countries and are subject to a duty of 20 p.c. from most-favoured-nation countries. Certain specified parts and materials now qualify for duty-free entry under a number of end-use provisions. The principal proposals of the industry, represented by the Electronic Industries Association of Canada (E.I.A.), involved the imposition of a duty of 15 p.c. on imports under the British Preferential Tariff and no change in the most-favoured-nation rate, with most of the complete equipment and components to be provided for specifically in the Customs Tariff. The Association also requested free entry, or reduced rates of duty, on many of the parts and materials. The Board recommends for most of the complete equipment and components the maintenance of duty-free entry under the British Preferential Tariff and a reduction from 20 p.c. to 15 p.c. in the most-favoured-nation rate, with duty-free entry or reduced rates under both these Tariffs for many of the parts and materials.

Since World War II, the rate of growth in the radio apparatus industry has surpassed that of any other major manufacturing industry in Canada. The total value of shipments increased from about \$50 million in the late 1940's to well over \$200 million at present, while total employment in the industry, which was less than 8,000 in 1949, now approaches 20,000. This expansion has been associated with a number of developments which have combined to make the radio apparatus industry of today considerably different from that viewed by the Board in the late 1930's (Reference 104). The more important of these developments have been: a considerable increase in the volume and variety of components manufactured in Canada, a great diversification in the industry's output associated with the introduction of new products in the home entertainment, telecommunication and defence fields, and the resultant increased dependence of the industry on defence and other government procurement. Together, these developments have made the industry less vulnerable to rapid shifts in demand for any one product and to import competition. In addition, the industry continues to benefit from several factors which, traditionally, have tended to enhance its competitive position in the domestic market. Included among these are safety standards and similar regulations, patents, and the close association of a large segment of the Canadian radio apparatus industry with companies abroad. Although the importance of some of these factors may have diminished over the years, they nevertheless continue to confer certain benefits upon the radio apparatus industry, in some cases more important than those derived from the protective tariff.



With a few exceptions, and these only in recent years, the industry has not been export minded, but has concerned itself almost entirely with the domestic market. The recent successes of several Canadian companies in securing export business in both the home entertainment field and in the field of more sophisticated equipment suggest that Canadian industry can be competitive in export markets as well.

Firms in the radio apparatus industry fall, for the most part, into two categories: those producing mostly complete equipment and those making chiefly components. Ten large firms, most of them affiliated with companies abroad, account for about 80 per cent of the Canadian output of the complete equipment under review; they also account for most of the electron tubes and semiconductor devices manufactured in Canada. The rest of the output of equipment and components comes from more than one hundred relatively small firms, most of which specialize either in some types of complete equipment or in a particular line of components.

The manufacturing processes undertaken by the Canadian radio apparatus industry consist largely of the assembly of purchased parts and materials, many of which are imported. To some extent, the reliance of the industry on imported parts and materials is due to the rapid pace of technological development resulting in an almost continuous introduction of new or improved components and materials, many of which it is uneconomical to produce in Canada. While the manufacture of radio apparatus and components does not require, on the whole, as heavy an investment in capital equipment as do many other manufacturing processes, the complexity and critical nature of some of the equipment and components make necessary the maintenance of extensive testing and laboratory facilities staffed by highly-qualified professional personnel.

As far as entertainment equipment is concerned, the combined effect of several factors, including tariffs and patents, has been such that Canadian producers have supplied almost the whole market, with the exception of portable transistor radios. Domestic manufacturers have also been supplying most of the Canadian requirements for the other equipment, including telecommunication and defence equipment, with certain types of airborne radio communication and navigation equipment and certain types of radar among the principal exceptions. However, owing chiefly to internal competition, the profitability of the industry has only been about the same as found in Canadian manufacturing industries generally, and a number of firms have found it difficult to maintain a foothold in the Canadian market, particularly in the home entertainment field. The difficulties of the industry in this area seem to stem largely from the fact that too many producers have been competing for the domestic market, each endeavouring to cover most of the complete range of products. This has led to a proliferation of models, increasing the problems of short runs, and has also resulted in an uneconomical duplication of sales, administrative and other overhead expenses. In spite of these cost-increasing factors, the keen competition within the domestic industry has kept prices generally well below the laid-down prices of imported equipment, including the most-favoured-nation duty of 20 p.c.

In these circumstances, the Board considers that a reduction in duty, although of itself unlikely to alter fundamentally the existing structure of the industry, might nevertheless encourage a



greater degree of specialization and some decrease in the variety of products being made. Accordingly, the Board is recommending a most-favoured-nation rate of 15 p.c. on radio, television and related apparatus, and on phonographs and combination sets; this represents a reduction of five percentage points from the present rates. As to the preferential rate, there was little evidence that imports of complete equipment from the United Kingdom have been detrimental to the development of the Canadian industry. In view of this, the Board is not recommending any change in the existing duty-free entry of radio and television apparatus under the British Preferential Tariff. On phonographs and combination sets the Board recommends a British preferential rate of 10 p.c., which is a reduction of five percentage points, thus maintaining the present margin of preference.

The E.I.A. proposed a separate item for tape recorders and reproducers with rates of 15 p.c., B.P. and 20 p.c., M.F.N. At present, tape recorders and reproducers are classified under tariff item 445k as electrical apparatus and are dutiable at 15 p.c., B.P. and  $22\frac{1}{2}$  p.c., M.F.N. On the other hand, dictating machines recording on tape are classified under tariff item 414b at 10 p.c., B.P. and  $12\frac{1}{2}$  p.c., M.F.N. This difference in tariff treatment has given rise to difficulties in administration, which have been further aggravated with the advent of multi-purpose recorders. The Board is recommending that all recorders and reproducers using magnetizable tape be dutiable at 10 p.c., B.P. and  $12\frac{1}{2}$  p.c., M.F.N. The Board is also recommending duty-free entry under both these Tariffs for tape transport mechanisms, which comprise well over 50 per cent of the manufacturing cost of a tape recorder and are not made in Canada at present. Having in mind the rather limited market, the Board is of the opinion that the manufacture of transport mechanisms should not be encouraged by a tariff. Thus, with duty-free entry recommended for the major component, the Board considers the rates recommended for complete tape recorders and reproducers adequate.

Turning now to components, a much greater share of the Canadian market has been supplied by imports than has been the case in the market for complete equipment. Primarily this is due to the fact that a number of components are not made in Canada or are not made in Canada in the full range required. In some measure this probably reflects the affiliation of many of the large Canadian equipment producers with foreign companies, but it also follows from the fact that components lend themselves to a greater degree of standardization and thus to international trading. However, with the possible exception of electron tubes, there is no evidence that the component industry has suffered unduly from import competition. In the case of tubes, the quantitative restrictions on exports to Canada imposed by the Japanese Government since 1961 seem to have eased the situation somewhat for Canadian tube manufacturers.

The proposals of the E.I.A. in respect of components would have two principal effects, namely to increase the British preferential rate from free to 15 p.c., and to introduce *eo nomine* provisions for several of the principal components.

There is little or no evidence that imports of components from the United Kingdom have had any significant effect on the Canadian component industry; many of the components imported from the United Kingdom are not available from Canadian production. The Board is, therefore, recommending no change in duty in the case of those com-



ponents which are now entered duty-free under the British Preferential Tariff. With respect to the most-favoured-nation rate, the Board considers that a rate of 15 p.c. is adequate on most components having in mind that continued duty-free entry is being recommended on a wide range of materials used in their manufacture; it is also the rate recommended on complete equipment.

Most of the principal components have a much wider application than in the field under review in this Report; nevertheless in some cases the Board has considered it appropriate to recommend *eo nomine* items under which the articles would be entered irrespective of use; for example, recommended items V and VI provide for electron tubes and transistors and other semiconductor devices, some of which may now be entered under tariff items which were not specifically mentioned in the Minister's letter of reference.

As noted earlier, the pace of technological development in the industry is such that new or greatly improved designs, manufacturing processes, and basic parts and materials are being introduced almost continuously. If the Canadian industry is to keep pace and maintain its position in domestic and foreign markets, it must have reasonably free access not only to the engineering know-how associated with these developments, but also to the newly developed parts and materials, many of which it may be uneconomical to manufacture in Canada. With this in mind, the Board is recommending duty-free entry, or reduced rates of duty, for many of the parts and materials used in the manufacture of the equipment and of the principal components under review. Most of the parts and materials for which special provisions are being recommended are currently being entered duty-free; they are not manufactured in Canada at present, nor are they likely to be manufactured in the foreseeable future.

Several other proposals were made by the E.I.A. on which brief comments seem appropriate. With respect to the provision for radio for navigation and air traffic communication and parts thereof in tariff item 440r, the Association proposed, in effect, that the words "types or sizes" be replaced by the words "a class or kind". It seems to the Board that, unless the words "class or kind" were interpreted very narrowly, the Association's suggestion would mean the imposition of a duty on many pieces of equipment which are now duty-free and which are not available from Canadian producers. In the light of the information received at the hearing and in the course of plant visits, the Board has come to the conclusion that the existing wording of item 440r is of advantage to the aircraft industry and of little disadvantage to the Canadian radio and radio components industries; the Board is, therefore, recommending no change in that item.

The Association also suggested that tariff item 696(1) be amended so as to exclude electrical or electronic equipment of a class or kind made in Canada. This item provides duty-free entry for, among other things, scientific apparatus and instruments when imported for the use of certain institutions of a religious or educational nature, or by hospitals. This item was not included in the Minister's letter of reference, nor does the Board consider it "relevant to an adequate inquiry" in the context of this Reference. The item has since been referred to the Board under a different inquiry, to be known as Reference 134. At this time, therefore, the Board is making no recommendations respecting tariff item 696(1).

Another matter raised by the E.I.A. and certain other interested parties was the tariff on testing instruments used by the industry. After careful consideration, the Board came to the conclusion that it would be unwise to attempt to select those instruments which are of interest to the radio apparatus industry in order to provide for them rates of duty different from those which apply on similar instruments used by others. The Board is, therefore, making no recommendations respecting existing provisions in the Customs Tariff relating to testing instruments.

As a result of its study of the radio apparatus industry, the Board formed the impression that there is no basic reason why many Canadian products in this field should not be competitive in foreign markets, as indeed a number already are. Our domestic market, although much smaller than that enjoyed by producers in some countries, is growing rapidly and compares quite favourably with the markets in some of the countries producing radio equipment for export. In addition, in meeting the unique challenges offered by the extent and variety of Canada's terrain our radio communication equipment manufacturers have gained valuable experience and know-how. It seems to the Board that in this field the tariff has to a large extent served its purpose of fostering an infant industry which has now developed to the point where a progressive reduction in the tariff is desirable.





RECOMMENDED SCHEDULE

That the following tariff items, enumerations of goods and rates of duty be revoked by Order in Council or deleted by amendment of Schedule A to the Customs Tariff: 445d, 445o(1), 445o(2), 445o(3), 445o(4), 445p, 445q, 445s, 445t, 445u, 445v, 597a(2) in so far as it relates to phonographs, graphophones, gramophones and finished parts thereof, n.o.p., Ex. 597a(2) and 597a(4), and that Schedule A to the Customs Tariff be further amended by inserting therein the following items, enumerations of goods and rates of duty:

Tariff Item	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff
I	(a) Radio and television apparatus and parts thereof, n.o.p. ....	Free	15 p.c.	25 p.c.
	(b) Combination sets incorporating a record playing device .....	10 p.c.	15 p.c.	25 p.c.
II	(a) Phonographs and parts thereof, n.o.p. ....	10 p.c.	15 p.c.	25 p.c.
	(b) Record changers; turntables; tone arms; pick-up cartridges; phonograph needles; microphones, including microphone stands	7½ p.c.	7½ p.c.	25 p.c.
	(c) Parts and materials for use in the manufacture or repair of the goods enumerated in tariff item II(b) .....	Free	Free	25 p.c.

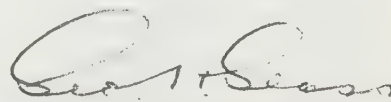
Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
III	(a) Recorders, reproducers and dictation recording and transcribing machines using magnetizable tape as a recording medium; parts thereof, n.o.p. ....	10 p.c.	12½ p.c.	25 p.c.
	(b) Tape transport mechanisms	Free	Free	25 p.c.
IV	(a) Loudspeakers; audio-frequency electric amplifiers; parts thereof, n.o.p. ....	Free	15 p.c.	25 p.c.
	(b) Cone housings, field cases, pole pieces, gaskets and brackets, all for speakers with mounting diameters in excess of 8 inches; Cones and cone surrounds; Diaphragm and voice coil paper; Dust covers; Magnets, magnet structures and magnet blanks; Spiders; Tinsel wire for voice coil leads; Voice coil wire; Materials for use in the manufacture of the foregoing; All the foregoing for use in the manufacture of loudspeakers .....	Free	Free	25 p.c.
V	(a) Electron tubes, except X-ray tubes; Bases, beaded assemblies, cages, guns, mounts, stems and wire-wound grids, all for use in the manufacture of electron tubes, except X-ray tubes .....	Free	15 p.c.	25 p.c.
	(b) Parts and materials for use in the manufacture of electron tubes, except X-ray tubes, or of parts therefor	Free	Free	25 p.c.

Tariff Item	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff
VI	(a) Transistors and other semiconductor devices; parts thereof .....	Free	15 p.c.	25 p.c.
	(b) Materials for use in the manufacture of the goods enumerated in tariff item VI(a) .....	Free	Free	25 p.c.
VII	(a) Transformers for use in the manufacture or repair of the goods enumerated in tariff items I, II, III and IV(a); parts thereof, n.o.p. ....	10 p.c.	15 p.c.	25 p.c.
	(b) Channel frames; Keeper laminations; Mounting brackets; All the foregoing for use in the manufacture of the goods enumerated in tariff item VII(a) .....	Free	Free	25 p.c.
VIII	Acid- or alkali-free super- or machine-calendered kraft tissue, cellulose acetate, polyester and polystyrene films, not exceeding 0.01 inch in thickness; Ceramic dielectrics; Etched aluminum foil; Metal cans and lids, drawn or extruded; Metal powders; Motors and gears for automatic tuning; Powdered iron and ferrite cores and other shapes, with or without inserts moulded therein; Raw low loss mica; Sheets and punchings of low loss mica; Stamped metal pulleys not exceeding 5 inches in outside diameter and 0.5 inch in width;			

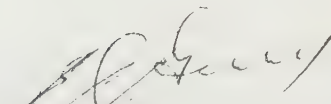
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Tariff Item	Goods Subject to Duty and Free Goods	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
VIII	(Cont'd)			
	Tantalum foil;			
	Textile fabrics coated with aluminum;			
	Tube shields of metal or metallized non-metal;			
	Materials for use in the manu- facture of the foregoing;			
	All the foregoing for use in the manufacture of the goods enumerated in tariff items I, II(a), III, IV and VII .....	Free	Free	25 p.c.



First Vice-Chairman



Member

Ottawa, December 3, 1964.

NOTES ON RECOMMENDED ITEMS

relating to radio, television and related products

Recommended Item I

I (a) Radio and television apparatus and parts thereof, n.o.p.

Free                      15 p.c.                      25 p.c.

(b) Combination sets incorporating a record playing device

10 p.c.                      15 p.c.                      25 p.c.

Part (a) of recommended item I is intended to cover radio, television and related apparatus, such as closed circuit television and radar, which is now entered under item 445d; it would also cover the parts now entered under item 445d, with the exception of loudspeakers, audio-frequency amplifiers, electron tubes, semiconductor devices, and some of their parts, all of which are more specifically provided for elsewhere in the recommended schedule. Existing item 445d provides duty-free entry under the British Preferential Tariff and a rate of 20 p.c. under the Most-Favoured-Nation Tariff. The rates prescribed for part (a) of recommended item I would continue the provision for free entry under the British Preferential Tariff, but would reduce the most-favoured-nation rate by five percentage points. Imports that would qualify for entry under this provision were valued in 1963 at about \$55 million, of which some 85 per cent were from most-favoured-nation countries; they are shown in greater detail below:

	<u>B.P.</u>	<u>M.F.N.</u>	<u>TOTAL</u>
	\$'000	\$'000	\$'000
Radio receiving sets:			
Transistor	340	7,250	7,610
Other, incl. crystal	36	2,251	2,298
Television receiving sets	1	3,479	3,480
Other radio apparatus and parts	<u>7,370</u>	<u>34,250</u>	<u>41,620</u>
TOTAL	7,747	47,230	55,008

In its representations before the Board, the industry requested a British preferential rate of 15 p.c. and the continuation of the present most-favoured-nation rate of 20 p.c. The Board, however, considers that neither the extent nor the nature of imports from Commonwealth countries warrant the imposition of a tariff, and that continued duty-free entry would be a benefit rather than a detriment to domestic industry.

While imports under the Most-Favoured-Nation Tariff have been substantial, particularly those of transistor radios from Japan, the Board is of the opinion that some reduction in the duty of 20 p.c. would encourage a more rational and internationally competitive Canadian industry. Transistor radios would no doubt continue to be imported even over the rates proposed by the industry; imports of other categories of complete equipment and of component parts appear to consist mostly of types not available from Canadian production.

The provision embodied in part (b) of recommended item I is intended to assist in the clarification of the tariff schedule. Combination sets incorporating a record playing device have rapidly increased in popularity over the past ten years. They have been ruled dutiable as phonographs under tariff item 597a(2), at rates of 15 p.c. and 20 p.c. under the British Preferential and the Most-Favoured-Nation Tariff respectively. A reduction of five percentage points in rates under all three Tariffs is being recommended, to bring the level of protection more in line with that recommended for radios and television sets in part (a), and with that for phonographs in recommended item II. Imports of radio-phonograph combinations were in 1963 valued at \$1.2 million, of which all but some \$3,000-worth were from most-favoured-nation countries. There is no information respecting the exact value of imports of radio-phonograph-television, or three-way, combinations; however, they are believed to be small, mostly from the United States.

#### Recommended Item II

##### II (a) Phonographs and parts thereof, n.o.p.

10 p.c.	15 p.c.	25 p.c.
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##### (b) Record changers; turn-tables; tone arms; pick-up cartridges; phonograph needles; microphones, including microphone stands

7½ p.c.	7½ p.c.	25 p.c.
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##### (c) Parts and materials for use in the manufacture or repair of the goods enumerated in tariff item II(b)

Free	Free	25 p.c.
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Part (a) of this item is intended to replace existing item 597a(2) in so far as it relates to phonographs, graphophones, gramophones, and finished parts, with the exception of turn-tables, tone arms and pick-up cartridges which are more specifically provided for in part (b). The rates recommended for part (a) represent a reduction of five percentage points from those now applicable to these products under item 597a(2).



Imports during 1963 are estimated at about \$1 $\frac{3}{4}$  million, of which just over one million dollars consisted of coin-operated phonographs; there is no known Canadian manufacturer of this type of phonographs.

The provision for record changers in part (b) of recommended item II would replace that for automatic record changers now embodied in item 445o(2), with no change in rates under the two main Tariffs. Turn-tables, tone arms and pick-up cartridges are now entered as parts under item 597a(2) at rates of 15 p.c., B.P. and 20 p.c., M.F.N. Phonograph needles are at present specifically provided for in an extract from item 597a(2), which bears rates of 10 p.c., B.P. and 15 p.c., M.F.N. Microphones, including stands equipped with a power cord, are now entered under item 445d (Free, B.P., 20 p.c., M.F.N.) when destined for use in conjunction with radio or television equipment and under item 445k (15 p.c., B.P. and 22 $\frac{1}{2}$  p.c., M.F.N.) when for use with sound equipment, such as public address systems. Thus, except for record changers and some microphones, duties on products enumerated in part (b) would be lower than those currently applicable. Some of these products are not made in Canada at present. Those that are, such as the pick-up cartridges, phonograph needles or microphones, generally incorporate a very substantial portion of imported parts. With duty-free entry for parts and materials recommended in part (c) of this item, the Board considers that the recommended rate of 7 $\frac{1}{2}$  p.c. offers adequate protection on value added.

Imports of the phonograph components listed in part (b) were valued at about \$5.5 million during 1963, of which just over \$4 million was from the United Kingdom. Imports from the United Kingdom appear to consist mostly of record changers. Imports of microphones are estimated at about \$500,000 in 1963, mostly under the Most-Favoured-Nation Tariff. About 70 per cent of the imported microphones are believed to be at present entered under item 445d, with the remainder ruled under item 445k.

Some of the parts and materials that would be entered under part (c) of recommended item II are specifically provided for in the Customs Tariff. Included among these are parts and materials for record changers, now entered duty-free under item 445o(4), parts and materials for pick-ups, entitled to duty-free entry under existing items 445o(1) and 445o(4) respectively, and parts and materials for phonograph needles now entered under temporary item 597a(4), duty-free under the British Preferential Tariff and at a rate of 5 p.c. under the Most-Favoured-Nation Tariff. Thus, apart from the removal of the 5 p.c. most-favoured-nation rate on parts and materials for phonograph needles, the changes arising out of this recommendation would be confined to the extension of duty-free treatment to parts and materials used in the manufacture of turn-tables, tone arms and microphones; of these, only microphones are known to be manufactured in Canada at present. The current value of imports whose dutiable status would be changed as a result of this recommendation cannot be disclosed without revealing confidential information.

Bearing in mind the level of protection recommended for the products covered by part (b), the Board considers that provision should be made for duty-free entry of the parts and materials used in their manufacture.

Recommended Item III

- III (a) Recorders, reproducers and dictation recording and transcribing machines using magnetizable tape as a recording medium; parts thereof, n.o.p.

10 p.c.                      12½ p.c.                      25 p.c.

- (b) Tape transport mechanisms

Free                      Free                      25 p.c.

Part (a) is intended to attract the tape recorders and reproducers, or players, now entered under item 445k (15 p.c., B.P., 22½ p.c., M.F.N.) and the dictating and transcribing machines using tape as a recording medium which are now entered under item 414b (10 p.c., B.P. and 12½ p.c., M.F.N.). The industry requested the establishment of a separate tariff item for tape recorders and reproducers, and parts thereof, bearing rates of 15 p.c., B.P. and 20 p.c., M.F.N. Existing item 445k, under which tape recorders and reproducers are now entered, was not specifically referred to in the Minister's letter of reference. However, the Board has been informed that with the development of multi-purpose recording and reproducing equipment in recent years, the distinction between dictating equipment and other tape recording and reproducing equipment has tended to disappear giving rise to difficulties in tariff classification. Recommended item III is designed to eliminate these difficulties and to provide the same treatment for tape recording and reproducing equipment irrespective of its use.

Tape recorders have been made in Canada intermittently in very small quantities. The Board considers the rates of 10 p.c., B.P. and 12½ p.c., M.F.N., which now apply to dictating and transcribing machines, adequate for all types of tape recording and transcribing machines, bearing in mind that duty-free entry is being recommended in part (b) of this item for tape transport mechanisms, which account for considerably more than one-half of the production cost of tape recorders. Imports of tape recorders, whose dutiable status would be changed as a result of this recommendation, were valued in 1963 at about \$5.3 million, of which \$5 million was from countries entitled to most-favoured-nation treatment.

The Board has been informed that tape transport mechanisms, for which duty-free entry is being recommended in part (b), are not manufactured in Canada at present, nor are they likely to be in the foreseeable future as the volume required does not justify the cost of tooling. On the other hand, the industry urged



that their duty-free entry might encourage the manufacture of tape recorders and reproducers in Canada. The tape transport mechanisms intended to be entered under this provision are described in Section III of this Report. Up to now imports have been entered under item 445k; the volume and value of such imports is not known. However, as noted above, tape recorders have not been produced in Canada in significant quantities and, as a result, imports of tape transport mechanisms must have been relatively small, being confined chiefly to those destined for incorporation into high-fidelity or stereophonic high-fidelity systems.

#### Recommended Item IV

- IV (a) Loudspeakers; audio-frequency electric amplifiers; parts thereof, n.o.p.

Free	15 p.c.	25 p.c.
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- (b) Cone housings, field cases, pole pieces, gaskets and brackets, all for speakers with mounting diameters in excess of 8 inches; Cones and cone surrounds; Diaphragm and voice coil paper; Dust covers; Magnets, magnet structures and magnet blanks; Spiders; Tinsel wire for voice coil leads; Voice coil wire; Materials for use in the manufacture of the foregoing;

All the foregoing for use in the manufacture of loudspeakers

Free	Free	25 p.c.
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Depending on whether they are destined for use with radio and television equipment or for incorporation into sound systems, such as public address systems, the loudspeakers and amplifiers covered by part (a) are at present entered as parts mostly under items 445d (Free, B.P. and 20 p.c., M.F.N.) or 445k (15 p.c., B.P. and 22½ p.c., M.F.N.). The Board is recommending that all loudspeakers and audio-frequency amplifiers be dutiable at the same rates as are recommended for radio and television apparatus generally.

Imports which would qualify for entry under this provision are estimated, on the basis of 1963, at about \$4 million, divided about equally between loudspeakers and amplifiers. Of these, about \$2.5 million are believed to be now entered under item 445d, with just over \$1.0 million originating in countries entitled to the British preference. The other \$1.5 million are entered mostly under existing item 445k and are believed to be practically all from most-favoured-nation countries.

In the course of the inquiry concern was expressed about loudspeakers imported from the United Kingdom under the duty-free provision in item 445d. However, there is evidence that a substantial portion of these imports consists of high-performance, high-quality speakers not directly comparable with



those made in Canada, and that relatively few speakers of the type made in Canada are being imported.

Practically all of the parts provided for in (b) of recommended item IV now qualify for duty-free entry under items 4450(1) or 4450(4). There is only one difference worth noting: the recommended item provides for cone housings and certain other parts for speakers with mounting diameters in excess of 8 inches, whereas item 4450(1) now provides for approximately the same parts for speakers with mounting diameters not exceeding 6-3/8 inches. This change is recommended in the light of evidence suggesting that most parts for speakers with mounting diameters of up to and including 8 inches are now made in Canada, whereas the smaller volume of larger speakers makes domestic production of most of the specified parts for such speakers uneconomical.

#### Recommended Item V

- V (a) Electron tubes, except X-ray tubes; Bases, beaded assemblies, cages, guns, mounts, stems and wire-wound grids, all for use in the manufacture of electron tubes, except X-ray tubes

Free	15 p.c.	25 p.c.
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- (b) Parts and materials for use in the manufacture of electron tubes, except X-ray tubes, or of parts therefor

Free	Free	25 p.c.
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Most of the electron tubes provided for in part (a) of recommended item V are at present entered as parts under item 445d, duty-free from British preferential countries and at a rate of 20 p.c. from most-favoured-nation countries. There are several other items under which tubes can now be entered, including items 440r, 440g(1), 445c(i), 445c(ii), 445k and 445n; rates under these items range from free to 15 p.c., B.P. and from free to 22½ p.c., M.F.N. The parts named in the recommended provision for tubes are now entered under the same items as the tubes themselves, mostly item 445d.

Canadian production of electron tubes is heavily concentrated among some 150 popular types of receiving tubes; close to 80 per cent of total requirements for these types are supplied from domestic production. Canadian manufacturers also supply practically all of the market for television picture tubes. On the other hand, Canada has traditionally relied on imports for most of the receiving tubes required in small quantities and for tubes other than receiving and television picture tubes, many of which are not manufactured in Canada at all.

The manufacture of electron tubes is an integral part of the radio apparatus industry and is of sufficient commercial importance to merit a separate provision in the Customs Tariff

under which electron tubes would be entered regardless of their end-use. With Canadian manufacturers supplying most of the Canadian requirements for the large-volume types of receiving tubes and for television picture tubes, and with duty-free entry provided in part (b) for parts and materials used in the manufacture of tubes, the Board considers that the provision embodied in part (a) of recommended item V will be conducive to economic production of tubes in Canada, without imposing an undue burden on the users of tubes which it is uneconomical to manufacture in this country. The Board realizes that, under the comparative cost relationships now prevailing, the recommended most-favoured-nation rate of 15 p.c. is of itself insufficient to make domestic production competitive in relation to imports from Japan. However, a level of duty that would be necessary to do so would have the effect of increasing very substantially the landed cost of imports from other countries supplying types of tubes not available either from domestic production or from Japan.

The parts that are included in the recommended provision for electron tubes are mostly sub-assemblies which it was felt ought to be excluded from duty-free entry under part (b), where they otherwise would be entered. These sub-assemblies are at present dutiable under the same items as the tubes for which they are destined; they are being assembled in Canada, mostly from imported parts and materials.

Imports of electron tubes and parts that would be covered by part (a) of recommended item V were valued in 1963 at about \$13 million, of which about \$11.2 million was from most-favoured-nation countries. Most of the imports were entered under existing item 445d.

Under part (b) of recommended item V would continue to be entered duty-free all of the parts and materials now enumerated in items 445p, 445q, 445s, 445t and 445u, as well as any other parts used in the manufacture of tubes which at present are not specifically provided for in the Customs Tariff.

Most of the parts and materials used in making electron tubes are not available in Canada and, consequently, their continued duty-free entry is considered warranted. Those major parts known to be assembled in Canada are provided for in part (a) of the item at the rates of duty recommended for electron tubes themselves. Imports that would qualify for entry under part (b) of recommended item V were in 1963 valued at \$7 million, of which all but \$60,000 were from most-favoured-nation countries.

#### Recommended Item VI

VI (a) Transistors and other semiconductor devices; parts thereof

Free	15 p.c.	25 p.c.
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VI (b) Materials for use in the manufacture of the goods enumerated in tariff item VI(a)

Free

Free

25 p.c.

The transistors and other semiconductor devices provided for in part (a) are at present entered mostly under item 445d (free, B.P., 20 p.c., M.F.N.), although some may be entered also under other items, such as 440r, 440g(1), 445c(i), 445c(ii), 445k or 445n; rates under these latter items range from free to 15 p.c., B.P. and from free to  $22\frac{1}{2}$  p.c., M.F.N. The parts are now entered under the same item as the semiconductor devices themselves, although prior to February 1, 1961 they were entitled to duty-free entry under item 445v.

The variety of transistors and other semiconductor devices in use is considerable, with new or improved types developed almost continuously. Canadian production of transistors and other semiconductor devices is confined for the most part to a relatively few types required in large volume. For all the other types, Canada relies mostly on imports.

The Board considers that in view of their growing importance, transistors and other semiconductor devices should all be dutiable at the same rates, regardless of end-use. With duty-free entry for all materials recommended in part (b), the Board is of the opinion that the recommended tariff treatment would be adequate for continued production in Canada of those types of semiconductor devices which it is economical to manufacture here.

Many of the parts used in making semiconductor devices are made in Canada, or could be. Accordingly, the Board considers that they should continue to be treated for customs purposes the same way as the semiconductor devices themselves, as, indeed, they have been since February, 1961.

Imports of transistors, other semiconductor devices and of their parts were in 1963 valued at \$6.3 million, of which \$6.2 million originated in countries entitled to most-favoured-nation treatment.

Part (b) of recommended item VI would continue the duty-free provision for materials now embodied in temporary item 445v. Most materials used in making semiconductor devices are not available from Canadian production, nor are they likely to be in the foreseeable future.

Recommended Item VII

VII (a) Transformers for use in the manufacture or repair of the goods enumerated in tariff items I, II, III and IV(a); parts thereof, n.o.p.

10 p.c.

15 p.c.

25 p.c.



- VII (b) Channel frames; Keeper laminations; Mounting brackets;  
All the foregoing for use in the manufacture of the  
goods enumerated in tariff item VII(a)

Free

Free

25 p.c.

This item would provide for transformers used in the radio, television and related equipment which is under review. Such transformers and their parts are now entered under item 445f at a British preferential rate of 15 p.c. and a most-favoured-nation rate of  $22\frac{1}{2}$  p.c. While item 445f was not included in the Minister's letter of reference, the Board is of the opinion that consideration of transformers used in the radio apparatus industry is relevant to an adequate inquiry.

Considerable effort was made by the Board, with assistance from the industry, to devise an *eo nomine* description which would have the effect of restricting entry under the item only to transformers used in the radio apparatus industry. However, no suitable description could be devised and, consequently, the Board is recommending an end-use description similar to that originally proposed by the industry. Under it, the transformers for use in equipment other than that respecting which recommendations are being made in this Report would continue to be dutiable under existing item 445f.

In recommending the rates for part (a) of item VII, the Board took into consideration the duty-free entry for parts under part (b) of this item and for materials under recommended item VIII, as well as the fact that steel used in making laminations is currently being imported duty-free.

Imports of transformers and parts that would be entitled to entry under part (a) of recommended item VII are estimated at between one and one and a half million dollars annually, mostly under the Most-Favoured-Nation Tariff.

The products for which duty-free entry is being recommended in part (b) of recommended item VII are now dutiable as parts of transformers under item 445f at a British preferential rate of 15 p.c. and a most-favoured-nation rate of  $22\frac{1}{2}$  p.c. The Board has concluded that total Canadian requirements for these parts are insufficient to make their production in Canada economical for some time to come. Imports that would qualify for entry under this item are estimated at less than \$500,000 annually.

#### Recommended Item VIII

- VIII Acid- or alkali-free super- or machine-calendered kraft tissue, cellulose acetate, polyester and polystyrene films, not exceeding 0.01 inch in thickness; Ceramic dielectrics; Etched aluminum foil; Metal cans and lids, drawn or extruded; Metal powders; Motors and gears for automatic tuning; Powdered iron and ferrite cores and other shapes, with or without inserts

(Cont'd)

## VIII (Cont'd)

moulded therein; Raw low loss mica; Sheets and punchings of low loss mica; Stamped metal pulleys not exceeding 5 inches in outside diameter and 0.5 inch in width; Tantalum foil; Textile fabrics coated with aluminum; Tube shields of metal or metallized non-metal; Materials for use in the manufacture of the foregoing;

All the foregoing for use in the manufacture of the goods enumerated in tariff items I, II(a), III, IV and VII

Free

Free

25 p.c.

This recommended item would continue to provide duty-free entry for many of the parts and materials now provided for in items 4450(1), 4450(3) and 4450(4). However, some of the products covered by the existing items have been excluded and others, not now specifically provided for, have been added. In recommending these adjustments, changes that have occurred over the years in the use of the various types of materials as a result of advancing technology and the development of production in Canada have been taken into account. The net effect of the change in coverage cannot be readily assessed. Imports under existing items 4450(1), 4450(3) and 4450(4) were in 1963 valued at \$5 million, of which \$4.9 million were entered under the Most-Favoured-Nation Tariff.

NOTES ON EXISTING ITEMS

relating to radio, television and related products

Existing Item 440r (in part)

440r

...  
Radio for navigation and air traffic communication;

...  
Parts of all the foregoing;

All of the foregoing when of types or sizes not made in Canada and for use in aircraft, aircraft engines, airborne aircraft equipment, or parts of aircraft, aircraft engines, or airborne aircraft equipment

Free

Free

27½ p.c.

The Board is recommending no change in the above provision. However, parts which are more specifically provided for elsewhere in the recommended schedule, such as electron tubes or transistors and other semiconductor devices, would very likely no longer be entered under it.

The domestic radio apparatus industry expressed concern chiefly about the parts being imported duty-free under this item and proposed, in effect, that the phrase "types or sizes" now in the item be replaced by the phrase "a class or kind". Implementation of this proposal would restrict the scope of the item.

The equipment provided for in the portion of the item which is before the Board is of a highly specialized nature; the parts imported under it are, for the most part, not currently available from domestic suppliers, nor are they likely to be in the foreseeable future. The Board came to the conclusion that the item as it is now worded is of little disadvantage to the domestic radio apparatus industry, while it is of considerable advantage to the Canadian aircraft industry.

Existing Item 445d

445d

Electric wireless or radio apparatus and complete parts thereof, n.o.p.

Free

20 p.c.

30 p.c.

Upon deletion of this item, the complete equipment now entered under it would be classified under recommended item I(a). The description of the recommended item is worded somewhat differently, but the change is intended merely for clarification.

Most of the parts now classified under item 445d would also be entered under recommended item I(a), with the exception



of loudspeakers, audio-frequency amplifiers, electron tubes and transistors and other semiconductor devices, and their parts, which are more specifically provided for in recommended items IV, V and VI.

The products now entered under item 445d would continue to be entered duty-free under the British Preferential Tariff, while a reduction of 5 percentage points is recommended under the Most-Favoured-Nation Tariff.

Existing Item 445o

- 445o (1) Acid-free capacitor tissue and paper, plain and gummed; Bias cells and holders; Cones, spiders, spider suspensions, voice coils and voice coil dust covers, separate or assembled; Frames, yokes, brackets, pole-pieces, gaskets and field covers, separate or assembled for use in speakers with mounting diameter not exceeding 6-3/8 inches; Glass dial crystals and scales and metal dials or scales made by the silk-screen process; High frequency circuit switches and essential components thereof; High frequency coil forms and tubing having an outside diameter not exceeding one inch; High frequency iron cores with or without inserts moulded therein; Magnetic structures and parts thereof for permanent magnet speakers; Metal cabinet escutcheons without crystals, plain or finished; Metal cans, extruded, plated or unplated; Motors and gears for automatic tuning; Parts for pickups; Radio frequency ceramics; Raw low loss mica; Sheets and punchings of low loss mica; Tube shields and parts thereof; Vibrators; Vulcanized fibre in sheets, rods, strips or tubing;

For use in the manufacture or the repair of the goods enumerated in tariff items 445d, 597a, and other apparatus using radio tubes, or for use in the manufacture of parts therefor

Free                  Free                  30 p.c.

- (2) Automatic record changers

7½ p.c.                  7½ p.c.                  30 p.c.

- (3) Alloy resistance wire having a diameter of less than .005 inch; Automatic record-centering mechanisms with tone arm, not including motors or turntables; Etched aluminum foil; Metal cabinet escutcheons with crystals, plain or finished; Metal powders; Spring-drive motors for record turntables; Textile fabrics, coated with aluminum;

When of a class or kind not made in Canada and for use in the manufacture or the repair of the goods enumerated in tariff items 445d, 597a, and other apparatus using radio tubes, or for use in the manufacture of parts therefor

Free                  Free                  30 p.c.

- 445o (4) Materials and parts, not including motors, for use by manufacturers of apparatus using radio tubes, or of parts therefor, in the manufacture, in their own factories, of the goods enumerated in tariff items 445o(1), 445o(2) and 445o(3)

Free

Free

30 p.c.

Upon deletion of this item, most of the products named in parts (1) and (3) would continue to qualify for duty-free entry under recommended items II(c), IV(b) or VIII; the others would, for the most part, be classifiable as parts principally under recommended item I(a), duty-free under the British Preferential Tariff and at a rate of 15 p.c. under the Most-Favoured-Nation Tariff. In recommending the exclusion of certain parts and materials from the duty-free list, the Board took into consideration technological changes that have occurred as well as the development of production capabilities in Canada.

Automatic record changers, now covered by part (2) of item 445o would, upon its deletion, be eligible for entry under part (b) of recommended item II, with no change in rates under the two main Tariffs.

Parts and materials now entered under part (4) of item 445o would continue to qualify for duty-free entry under the appropriate parts of recommended items II, IV, and VIII to the extent that the products for which they are destined are also classifiable under them. Motors are no longer excluded from these provisions, as they are now from item 445o. Parts and materials for use in the manufacture of products for which no specific provision is made in the recommended schedule would become classifiable according to their nature under existing items normally applicable.

It will be noted that the products listed in part (3) of item 445o are eligible for entry under it only if they are deemed to be of a class or kind not made in Canada. This restriction has not been continued in the recommended schedule. Also, imports under part (4) are now restricted to those "for use by manufacturers of apparatus using radio tubes, or of parts therefor". The recommended provisions for parts and materials do not carry such restriction.

Existing Items 445p, 445q, 445s, 445t, 445u

- 445p Ceramic parts; copper alloys for welding; getter and getter assemblies; glass parts; metal bulbs and shells and metal headers; mica parts; mica assemblies; wire snubbers, clips and straps; wire of molybdenum and molybdenum alloy; nickel and nickel alloy tubing, wire, ribbon, screen and strip, coated or not, carbonized or not; metal cathodes; nickel, nickel alloy and nickel plated parts, coated or not, carbonized or not; tungsten and tungsten alloy and zinc wire; leads, spuds and welds; iron parts designed for sealing to glass; hooks and supports; base pins; wire and strip of silver copper, chrome copper, chrome iron or plated iron; top cap assemblies;

(Cont'd)

445p (Cont'd)  
graphite anodes; heaters and filaments; all the foregoing when imported by manufacturers of radio tubes and parts therefor, for use exclusively in the manufacture of such articles, in their own factories

Free Free 30 p.c.

445q Glass bulbs, glass tubing, glass cane; molybdenum strip, tantalum wire and strip; copper tubing, rod and strip; iron strip, plated or not; metal parts, n.o.p.; all the foregoing when imported by manufacturers of radio tubes and parts therefor, for use exclusively in the manufacture of such articles, in their own factories

Free Free 30 p.c.

445s Articles of glass for use in the manufacture of cathode ray tubes for television receiving sets (Expires 31st January, 1966)

Free Free 30 p.c.

445t Molybdenum rod and tubing for use in the manufacture of radio tubes and parts therefor (Expires 30th June, 1965)

Free Free 30 p.c.

445u Getters and getter assemblies for use in the manufacture of radio tubes and parts therefor (Expires 30th June, 1965)

Free Free 30 p.c.

All of the parts and materials named in the above items would upon their deletion be classified under part (b) of recommended item V, with continued duty-free entry under the two main Tariffs.

It will be noted that imports under existing items 445p and 445q are now restricted to those "by manufacturers of radio tubes and parts therefor, for use exclusively ... in their own factories". The provision for parts and materials embodied in recommended item V(b) carries no such restriction.

#### Existing Item 445v

445v Materials for use in the manufacture of semi-conductor devices and parts therefor (Expires 31st January, 1966)

Free Free 30 p.c.



Materials now entered under this item would, upon its deletion, be classified under part (b) of recommended item VI, with continued free entry under the two main Tariffs.

Existing Item 597a (in part)

597a (2) Phonographs, graphophones, gramophones and finished parts thereof, n.o.p., including cylinders and records therefor

15 p.c.                      20 p.c.                      30 p.c.

Ex. Gramophone needles

10 p.c.                      15 p.c.

...

(4) Materials and parts for use in the manufacture of phonograph needles (Expires 31st January, 1966)

Free                      5 p.c.                      30 p.c.

In his original letter of reference, the Minister of Finance instructed the Board to consider item 597a(2) only in so far as it relates to electrically operated record players and record changers. In a Report dated October 20, 1959, the Board made recommendations respecting automatic record changers; the present Report deals with the remainder of item 597a(2) in so far as it is before the Board. In addition, under its authority to include other items which it considers relevant to an adequate inquiry, the Board is also making recommendations respecting the extract from item 597a(2) pertaining to gramophone needles, and temporary item 597a(4) relating to materials and parts used in their manufacture.

The Board recommends that item 597a(2) in so far as it relates to phonographs, graphophones, gramophones and finished parts thereof, n.o.p. be deleted. The products now entered under it would then become dutiable under the provision for phonographs and parts thereof, n.o.p. embodied in part (a) of recommended item II, with a reduction of 5 percentage points under all three Tariffs. It is believed that the change in wording would not affect the scope of the item to any significant extent.

The gramophone needles now entered under the extract from item 597a(2) would be covered by the provision for phonograph needles in part (b) of recommended item II. The change in wording is intended merely to bring the terminology into conformity with that used in part (a) of the recommended item. However, a reduction of duties to a rate of  $7\frac{1}{2}$  p.c. under the two main Tariffs is contemplated in the recommended schedule.

The materials and parts now entered under temporary item 597a(4) would qualify for entry under part (c) of recommended item II, with duty-free entry under the two principal Tariffs.









APPENDIX A

THE TARIFF ITEMS AND THEIR HISTORY

(From May 2, 1930)

NOTE: The tariff items marked with an asterisk (\*) were not specifically mentioned in the Minister's letter of reference, but are relevant in so far as some of the products under review are classified under them.

Tariff Item 440g(1)\*

Manufactures of iron, brass or other metal, of a class or kind not made in Canada, for use exclusively in the construction or equipment of ships or vessels, under regulations prescribed by the Minister

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1950, June 1 Renumbered 440g(1)			
1930, May 2 Known as item 440g	Free	Free	Free

Tariff Item 44Or (in part)

...  
Radio for navigation and air traffic communication;

...  
Parts of all the foregoing;  
All of the foregoing when of types or sizes not made in Canada and for use in aircraft, aircraft engines, airborne aircraft equipment, or parts of aircraft, aircraft engines, or airborne aircraft equipment

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1955, June 4 Introduced. Previously classified under item 445d	Free	Free	Free

Tariff Item 445d

Electric wireless or radio apparatus and complete parts thereof,  
n.o.p.

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1948, January 1 (GATT)		20 p.c.	
1939, April 2 <u>Inserted:</u> n.o.p.			
1932, October 13	Free		30 p.c.
1930, May 2 Introduced	15 p.c.	25 p.c.	27½ p.c.



Tariff Item 445f\*

Electric dynamos or generators and transformers, and complete parts thereof, n.o.p.

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1948, January 1 (GATT)		22½ p.c.	
1937, February 26	15 p.c.		
1930, September 17	25 p.c.	33 1/3 p.c.	37½ p.c.
1930, May 2 Introduced	15 p.c.	25 p.c.	27½ p.c.

Tariff Item 445k\*

Electric apparatus and complete parts thereof, n.o.p.

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1948, January 1 (GATT)		22½ p.c.	
1930, May 2 Introduced	15 p.c.	25 p.c.	30 p.c.

Tariff Item 445o(1)

Acid-free capacitor tissue and paper, plain and gummed;  
 Bias cells and holders;  
 Cones, spiders, spider suspensions, voice coils and voice coil dust covers, separate or assembled;  
 Frames, yokes, brackets, pole-pieces, gaskets and field covers, separate or assembled for use in speakers with mounting diameter not exceeding 6 3/8 inches;  
 Glass dial crystals and scales and metal dials or scales made by the silk-screen process;  
 High frequency circuit switches and essential components thereof;  
 High frequency coil forms and tubing having an outside diameter not exceeding one inch;  
 High frequency iron cores with or without inserts moulded therein;  
 Magnetic structures and parts thereof for permanent magnet speakers;  
 Metal cabinet escutcheons without crystals, plain or finished;  
 Metal cans, extruded, plated or unplated;  
 Motors and gears for automatic tuning;  
 Parts for pickups;  
 Radio frequency ceramics;  
 Raw low loss mica;  
 Sheets and punchings of low loss mica;  
 Tube shields and parts thereof;  
 Vibrators;

(Cont'd)

Vulcanized fibre in sheets, rods, strips or tubing;

For use in the manufacture or the repair of the goods enumerated in tariff items 445d, 597a, and other apparatus using radio tubes, or for use in the manufacture of parts therefor

B.P.      M.F.N.      General

1961, June 21

Deleted: automatic record changers  
Subsequently classified under item  
445o(2)

1948, May 19

Renumbered 445o(1)

1940, June 25

Deleted:

aluminum cans, extruded;  
diaphragms with or without  
spiders and voice coils;  
magnets

Inserted:

cones, spiders, spider  
suspensions, voice coils  
and voice coil dust covers,  
separate or assembled;  
high frequency coil forms and  
tubing having an outside  
diameter not exceeding one  
inch;  
magnetic structures and parts  
thereof for permanent  
magnet speakers;  
metal cabinet escutcheons  
without crystals, plain or  
finished;  
metal cans, extruded, plated  
or unplated;  
raw low loss mica;

Amended:

bias cells and holders;  
frames, yokes, brackets, pole-  
pieces, gaskets and field  
covers, separate or assembled  
for use in speakers with  
mounting diameter not  
exceeding 6 3/8 inches;  
glass dial crystals and scales  
and metal dials or scales made  
by the silk-screen process;  
high frequency circuit switches  
and essential components  
thereof;  
high frequency iron cores with or  
without inserts moulded therein;

(Cont'd)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
tube shields <u>and parts thereof</u> ; for use in the manufacture or the repair of the goods enumerated in tariff items 445d, 597a, <u>and other apparatus using</u> <u>radio tubes</u> , or for use in the manufacture of parts therefor			
1939, April 26	Free	Free	30 p.c.
Introduced as item 445o: Acid-free capacitor tissue and paper, plain and gummed; aluminum cans, extruded; automatic record changers and parts for pickups; bias cells; diaphragms with or without spiders and voice coils; frames, yokes, brackets and housings to be used in the assembly of speakers with mounting diameter not exceeding 6 1/8 inches; glass dial crystals and scales; high frequency circuit switches; high frequency iron cores; magnets; motors and gears for automatic tuning; radio frequency ceramics; sheets and punchings of low loss mica; tube shields; vibrators; vulcanized fibre in sheets, rods, strips and tubing; for use in the manu- facture or the repair of the goods enumerated in Tariff Items 445d or 597a, or for use in the manufacture of parts therefor Previously classified under items 445d and 597a, or according to material			

Tariff Item 445o(2)

Automatic record changers

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1961, June 21	7½ p.c.	7½ p.c.	30 p.c.
Introduced. Previously provided for in tariff item 445o(1)			



Tariff Item 4450(3)

Alloy resistance wire having a diameter of less than .005 inch;  
 Automatic record-centering mechanisms with tone arm, not including  
 motors or turntables;  
 Etched aluminum foil;  
 Metal cabinet escutcheons with crystals, plain or finished;  
 Metal powders;  
 Spring-drive motors for record turntables;  
 Textile fabrics, coated with aluminum;

When of a class or kind not made in Canada and for use in the manu-  
 facture or the repair of the goods enumerated in tariff items 445d,  
 597a, and other apparatus using radio tubes, or for use in the manu-  
 facture of parts therefor

B.P.                      M.F.N.                      General

1961, June 21  
 Renumbered 4450(3)

1952, April 9  
Inserted: textile fabrics  
 coated with aluminum;

1948, May 19	Free	Free	30 p.c.
Introduced as item 4450(ii). Previously classified under items 445d and 597a, or according to material			

Tariff Item 4450(4)

Materials and parts, not including motors, for use by manufacturers  
 of apparatus using radio tubes, or of parts therefor, in the manu-  
 facture, in their own factories, of the goods enumerated in tariff  
 items 4450(1), 4450(2) and 4450(3)

B.P.                      M.F.N.                      General

1961, June 21  
 Renumbered 4450(4)

1948, May 19	Free	Free	30 p.c.
Introduced as item 4450(iii). Previously classified under items 445d and 597a, or according to material			

Tariff Item 445p

Ceramic parts; copper alloys for welding; getter and getter assemblies; glass parts; metal bulbs and shells and metal headers; mica parts; mica assemblies; wire snubbers, clips and straps; wire of molybdenum and molybdenum alloy; nickel and nickel alloy tubing, wire, ribbon, screen and strip, coated or not, carbonized or not; metal cathodes; nickel, nickel alloy and nickel plated parts, coated or not, carbonized or not; tungsten and tungsten alloy and zinc wire; leads, spuds and welds; iron parts designed for sealing to glass; hooks and supports; base pins; wire and strip of silver copper, chrome copper, chrome iron or plated iron; top cap assemblies; graphite anodes; heaters and filaments; all the foregoing when imported by manufacturers of radio tubes and parts therefor, for use exclusively in the manufacture of such articles, in their own factories

B.P.                      M.F.N.                      General

1940, June 25

Deleted:

ceramic spacers and insulators;  
glass bulbs and glass tubing;  
lead wires and welds;

Inserted:

ceramic parts; glass parts;  
metal cathodes; nickel, nickel  
alloy and nickel plated parts,  
coated or not, carbonized or  
not; iron parts designed for  
sealing to glass; hooks and  
supports; base pins; wire and  
strip of silver copper, chrome  
copper, chrome iron or plated  
iron; top cap assemblies;  
graphite anodes; heaters and  
filaments;

Amended:

metal bulbs and shells and  
metal headers; wire snubbers,  
clips and straps; tungsten  
and tungsten alloy and zinc  
wire;

1939, April 26

Free

Free

30 p.c.

Introduced:

Ceramic spacers and insulators;  
copper alloys for welding;  
getter and getter assemblies;  
glass bulbs and glass tubing;  
lead wires and welds; metal  
bulbs; mica parts and wire  
snubbers; molybdenum and  
molybdenum alloy wire;

(Cont'd)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
nickel and nickel alloy tubing, wire, ribbon, screen and strip, coated or not, carbonized or not; wire of tungsten or zinc; all the foregoing when imported by manufacturers of radio tubes and parts therefor, for use exclusively in the manufacture of such articles, in their own factories			
Previously classified according to material			

Tariff Item 445q

Glass bulbs, glass tubing, glass cane; molybdenum strip; tantalum wire and strip; copper tubing, rod and strip; iron strip, plated or not; metal parts, n.o.p.; all the foregoing when imported by manufacturers of radio tubes and parts therefor, for use exclusively in the manufacture of such articles, in their own factories

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1942, August 1 Introduced under the War Measures Act. Previously classified according to material	Free	Free	30 p.c.

Tariff Item 445s

Articles of glass for use in the manufacture of cathode ray tubes for television receiving sets (Temporary item due to expire January 31st, 1966, unless extended)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1960, February 1 Changed to present wording			
1955, April 1 Introduced: Glass bulbs for use in the manufacture of cathode ray tubes for television receiving sets Previously classified under item 326a, viz.: Manufactures of glass, n.o.p.	Free     10 p.c.	Free     17½ p.c.	30 p.c.     22½ p.c.



Tariff Item 445t

Molybdenum rod and tubing for use in the manufacture of radio tubes and parts therefor (Temporary item due to expire June 30th, 1965, unless extended)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1958, February 1 Introduced. Previously classified under item 711, viz.: All goods not enumerated in this schedule as subject to any other rate of duty, and not otherwise declared free of duty, and not being goods the importation whereof is by law prohibited	Free         15 p.c.	Free         25 p.c.	30 p.c.         25 p.c.

Tariff Item 445u

Getters and getter assemblies for use in the manufacture of radio tubes and parts therefor (Temporary item due to expire June 30th, 1965, unless extended)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1958, February 1 Introduced. Previously classified under item 445d	Free	Free	30 p.c.

Tariff Item 445v

Materials for use in the manufacture of semi-conductor devices and parts therefor (Temporary item due to expire January 31st, 1966, unless extended)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1962, February 1 Changed to present wording			
1961, February 1 Changed to read: Materials imported by manu- facturers of semi-conductor devices and parts therefor, for use in the manufacture of such articles			

(Cont'd)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1960, February 1 Introduced: Materials and parts when imported by manufacturers of transistors and parts therefor, for use in the manufacture of such articles Previously classified according to material	Free	Free	30 p.c.

Tariff Item 597a(2) (in part)

Phonographs, graphophones, gramophones and finished parts thereof,  
n.o.p., ...

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1948, January 1 (GATT) Introduced. Previously classified under item 597, viz.: Musical instruments of all kinds, n.o.p.; phonographs, graphophones, gramophones and finished parts thereof, n.o.p., including cylinders and records therefor; and mechanical piano and organ players	15 p.c.	20 p.c.	30 p.c.
	15 p.c.	27½ p.c. less 10 p.c.	30 p.c.

Tariff Item Ex. 597a(2)\*

Gramophone needles

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1951, October 1 (GATT) Introduced. Previously classified under item 597a(2)	10 p.c.	15 p.c.	30 p.c.

Tariff Item 597a(4)\*

Materials and parts for use in the manufacture of phonograph needles  
(Temporary item due to expire January 31st, 1966, unless extended)

	<u>B.P.</u>	<u>M.F.N.</u>	<u>General</u>
1962, February 1 Introduced. Previously classified according to material	Free	5 p.c.	30 p.c.

APPENDIX BGENERAL STATISTICS

- Table 1 Principal Statistics of Plants in the Radio Apparatus Industry, 1949 to 1959
- 2 Principal Statistics of Plants in the Radio Apparatus Industry, by Product Categories, 1955 to 1961
- 3 Comparative Statistics
- 4 Canadian Shipments of Radio Apparatus and Related Products, 1947 to 1963
- 5 Entertainment Equipment Available from Canadian Production, 1962 Season
- 6 Canadian Shipments of Radio Receiving Sets, by Type, 1940 to 1963
- 7 Canadian Supply of Electron Tubes in 1962, by Source



Table 1

PRINCIPAL STATISTICS OF PLANTS IN THE RADIO APPARATUS INDUSTRY<sup>(a)</sup>  
1949 to 1959<sup>(b)</sup>

Year	Establish- ments No.	Employees No.	Salaries and Wages \$'000	Cost of Materials Used \$'000	Value Added by Manufacture \$'000	Value of Factory Shipments \$'000
1949	61	7,363	16,556	23,941	27,158 <sup>(c)</sup>	51,466
1950	67	8,499	20,048	31,258	34,881 <sup>(c)</sup>	66,597
1951	70	10,131	28,268	41,159	43,845 <sup>(c)</sup>	85,624
1952	91	11,756	33,985	62,482	59,454	122,603
1953	103	17,213	51,235	112,634	86,791	200,129
1954	120	18,020	56,392	124,697	104,045	228,512
1955	126	19,036	61,741	155,720	112,579	263,420
1956	125	21,403	72,569	135,182	119,323	244,763
1957	127	18,503	68,089	106,000	111,127	217,727
1958 <sup>(b)</sup>	127	19,100	75,498	119,506	122,008	237,995
1959	123	18,931	77,930	117,599	117,789	225,071

Source: DBS Cat. No. 43-201.

- <sup>(a)</sup> Includes plants classified by the DBS under the Telecommunication Equipment sub-group of the Electrical Apparatus and Supplies Industry. Prior to 1957, this sub-group was known as the Radios and Radio Parts sub-group.
- <sup>(b)</sup> Comparable statistics for more recent years are not available from the DBS owing to the adoption in 1960 of a revised Standard Industrial Classification. Similar figures compiled by the Board for the years 1955 to 1961 are shown in Table 2, together with a break-down by principal product categories.
- <sup>(c)</sup> Obtained by subtracting the cost of materials, including fuel and electricity, from the value of factory shipments, as value added statistics were not published prior to 1953.

Table 2

PRINCIPAL STATISTICS OF PLANTS IN THE RADIO APPARATUS INDUSTRY, BY PRODUCT CATEGORIES<sup>(a)</sup>  
1955 to 1961

Plants by Product Category (a) Year	Estab- lish- ments No.	Employees No.	Salaries and Wages \$'000	Cost of Materials Used \$'000	Value Added by Manufacture \$'000	Value of Factory Shipments		
						Civilian \$'000	Defence \$'000	Total \$'000
Entertainment Equipment								
1955	29	7,858	25,719	114,024	65,225	156,173	12,874	169,047
1956	26	8,245	26,381	92,967	44,787	138,084	2,264	140,348
1957	24	6,471	23,617	69,481	47,066	112,217	4,784	117,001
1958	22	6,289	24,284	77,150	44,742	110,008	5,772	115,780
1959	20	6,295	25,346	74,866	40,370	109,436	4,932	114,368
1960	23	5,847	24,464	67,159	36,896	96,821	7,617	104,438
1961	23	6,264	27,148	71,894	44,323	110,104	8,450	118,554
Other Equipment								
1955	34	5,622	19,811	22,933	18,785	12,533	34,943	47,476
1956	34	7,418	28,996	21,550	37,073	23,306	35,570	58,876
1957	34	5,739	24,331	20,217	25,486	30,164	15,695	45,859
1958	32	5,612	25,490	24,209	23,805	21,937	29,561	51,498
1959	32	5,509	26,585	16,101	29,909	24,268	20,709	44,977
1960	34	6,284	31,641	29,541	44,896	40,057	29,432	69,489
1961	33	6,617	32,353	34,019	41,461	30,990	47,652	78,642
Total Equipment								
1955	63	13,480	45,530	136,957	84,010	168,706	47,817	216,523
1956	60	15,663	55,377	114,517	81,860	161,390	37,834	199,224
1957	58	12,210	47,948	89,698	72,552	142,381	20,479	162,860
1958	54	11,901	49,774	101,359	68,547	131,945	35,333	167,278
1959	52	11,804	51,931	90,967	70,279	133,704	25,641	159,345
1960	57	12,131	56,105	96,700	81,792	136,878	37,049	173,927
1961	56	12,881	59,501	105,913	85,784	141,094	56,102	197,196
(Cont'd)								

(Cont'd)

Table 2  
(Concluded)

Plants by Product Category (a) Year	Establish- ments No.	Employees No.	Salaries and Wages \$'000	Cost of Materials Used \$'000	Value Added by Manufacture \$'000	Value of Factory Shipments		
						Civilian \$'000	Defence \$'000	Total \$'000
Components								
1955	66	4,876	13,520	15,797	22,860	..	..	38,335
1956	67	5,220	15,695	19,223	33,302	..	..	40,422
1957	70	4,559	14,175	10,623	28,043	..	..	39,080
1958	76	5,409	17,695	13,728	36,675	..	..	49,361
1959	80	5,607	18,556	20,048	31,577	..	..	49,707
1960	82	5,169	16,341	17,593	26,014	..	..	51,438
1961	75	5,861	19,901	19,859	36,724	..	..	54,614
TOTAL RADIO APPARATUS (b)								
1955	129	18,356	59,050	152,754	106,870	..	..	254,858
1956	127	20,883	71,072	133,740	115,162	..	..	239,646
1957	128	16,769	62,123	100,321	100,595	..	..	201,940
1958	130	17,310	67,469	115,087	105,222	..	..	216,639
1959	132	17,411	70,487	111,015	101,856	..	..	209,052
1960	139	17,300	72,446	114,293	107,806	..	..	225,365
1961	131	18,742	79,402	125,772	122,508	..	..	251,810

(a) Classification of plants by product categories based on the value of principal products shipped.

(b) The industry totals shown under this heading are not exactly comparable with those in Table 1 because they include a number of additional plants engaged principally in the manufacture of the products under review in Reference 123, while excluding plants manufacturing chiefly other products, such as industrial controls or signal systems.

Source: Compiled by the Tariff Board from data collected by DBS.



**COMPARATIVE STATISTICS**  
(Calendar year 1959, unless stated otherwise)

	Unit	RADIO APPARATUS (1)	Other Electrical Apparatus	Clothing (2)	Furniture	Motor Vehicles	Rubber Products	All Manufacturing Industries
Value of Shipments	\$'000,000	225	822	955	330	929	348	23,312
Value Added	"	118	448	458	167	354	188	10,321
- as p.c. of Value of Shipments	p.c.	52	55	48	51	38	54	44
- per Employee	\$	6,222	8,162	4,214	5,145	12,430	8,921	7,915
Employees	No.'000	19	55	109	32	28	21	1,304
- Admin. and Office	"	7	18	14	6	7	5	306
- Production	"	12	37	95	26	21	16	998
- Male	"	6	28	26	24	21	13	786
- Female	"	6	9	69	2	*	3	212
Salaries and Wages	\$'000,000	78	239	280	106	147	87	5,073
- as p.c. of Value Added	p.c.	66	53	61	63	42	46	49
Average Annual Earnings	\$	4,117	4,348	2,574	3,274	5,163	4,118	3,891
- Admin. and Office	\$	5,540	5,307	4,790	4,466	6,282	4,951	4,998
- Production	\$	3,268	3,889	2,259	3,001	4,786	3,835	3,551
Average Hourly Earnings of Production Workers	\$	1.60	1.84	1.13	1.40	2.25	1.81	1.72
- Male	\$	1.84	1.96	1.53	1.42	2.25	1.95	1.88
- Female	\$	1.30	1.46	.99	1.15	1.86	1.25	1.11
Capital Expenditures (Cumulative 1950-59)	\$'000,000	41	294	113	52	244	121	10,117
- per Employee	\$	2,166	5,352	1,035	1,603	8,556	5,741	7,758

Source: DBS Cat. No. 31-201, 43-201 and 72-204.

(1) Includes plants classified by DBS under the Telecommunication Equipment sub-group of the Electrical Apparatus and Supplies Industry.

(2) Including knitting mills.

CANADIAN SHIPMENTS OF RADIO APPARATUS AND RELATED PRODUCTS  
1947 to 1963

Year	A. Entertainment Equipment						Total Entertainment Equipment \$'000	
	Radio Receiving Sets (a)		Television Receiving Sets (b)		P h o n o g r a p h s			
	No.	\$'000	No.	\$'000	With Amplifier No.	Without Amplifier No.		
1947	984,276	33,063	(c) 4	(c) 1	26,726	63,971	1,181	34,989
1948	639,493	25,411	9,189	2,010	5,216	23,601	423	25,973
1949	791,051	29,412	32,971	7,765	34,988	39,549	624	32,736
1950	820,772	33,498	48,657	12,902	17,512	26,760	494	42,320
1951	628,395	29,635	141,946	30,073	49,970	9,957	248	43,950
1952	567,738	22,179	391,974	81,305	1,165	12,886	286	53,970
1953	737,457	28,021	611,206	105,682	1,432	12,037	525	111,422
1954	487,620	16,509	806,253	130,497	1,571	24,681	622	125,130
1955	621,957	19,177	613,895	94,507	2,317	34,653	472	154,005
1956	740,656	23,878	434,504	68,013	3,859	12,142	317	124,384
1957	732,827	25,643	432,318	67,669	5,682	11,070	187	101,681
1958	745,318	25,511	402,348	64,524	7,838	3,916	64	100,857
1959	713,309	24,485	342,488	53,727	7,613	5,592	93	95,876
1960	648,938	24,487	345,815	57,382	6,774	2,643	53	83,552
1961 (d)	588,545	27,725	422,051	..	5,285	1,498	31	89,997
1962 (d)	689,305	..	456,369	..	4,859	199	..	..
1963	810,031	..	..	..	..	-	-	..

(a) Including radio-phonograph combinations.

(b) Including radio-phonograph-television, or three-way, combinations.

(c) Not manufactured in Canada prior to 1948.

(d) Preliminary.

(Cont'd)

Table 4  
(Cont'd)B. Other Equipment

<u>Year</u>	<u>Radio Communication</u>		<u>Radar</u> \$'000	<u>Radio and Television Broadcasting</u> \$'000	<u>Total Other Equipment</u> \$'000	<u>TOTAL EQUIPMENT (A + B)</u> \$'000
	<u>Civilian</u> \$'000	<u>Military</u> \$'000				
1947	3,164	2,400	-	(a)	5,564	40,553
1948	2,717	149	-	(a)	2,866	28,839
1949	3,146	1,080	-	2	4,228	36,964
1950	2,312	2,539	-	165	5,016	47,336
1951	3,530	12,589	(b)	365	16,484	60,434
1952	5,293	16,401	26,504	634	48,832	102,802
1953	6,285	20,746	31,442	1,527	60,000	171,422
1954	5,218	31,198	28,781	4,284	69,481	194,611
1955	5,007	18,285	23,673	1,184	48,149	202,154
1956	12,623	11,465	14,845	984	39,917	164,301
1957	10,606	4,432	10,123	1,604	26,765	128,446
1958	11,182	10,005	21,981	2,322	45,490	146,347
1959	7,831	9,049	12,471	2,039	31,390	127,266
1960	13,668	12,137	20,186	6,118	52,109	135,661
1961	9,698	15,994	25,917	8,289	59,898	149,895

(a) Included in "All Other Equipment and Components".

(b) Included in "Radio Communication, Military".

(Cont'd)





Table 4  
(Cont'd)

## C. Components (Concluded)

(1000)									
Year	Electronic Tubes					Total Specified Components \$	All Other Equipment & Components (d) \$	TOTAL EQUIPMENT & COMPONENTS \$	
	Radio and TV Receiving (a)		Television Tubes		Total \$				
	No.	\$	Picture Tubes	Other (c)					
									No.
1947	7,985	3,747	(b)	51	3,798	6,498	6,103	53,154	
1948	4,041	1,831	(b)	35	1,866	3,365	3,856	36,060	
1949	4,683	2,787	(b)	518	3,305	5,555	4,828	47,347	
1950	8,182	4,964	(b)	907	5,871	8,646	6,269	62,251	
1951	9,977	5,216	(b)	1,067	6,283	9,730	8,703	78,867	
1952	7,221	4,673	120	133	7,131	11,041	9,256	123,099	
1953	12,803	8,477	(b)	5,535	14,012	21,612	14,589	207,623	
1954	11,369	6,608	(b)	7,516	14,124	23,300	24,637	242,548	
1955	15,054	8,991	(b)	8,986	17,977	30,588	38,825	271,567	
1956	15,778	10,292	(b)	10,048	20,340	31,989	37,286	233,576	
1957	16,068	11,271	(b)	9,613	20,884	29,345	39,367	197,158	
1958	18,405	13,724	532	897	25,156	33,801	32,724	212,872	
1959	15,604	10,916	590	2,697	25,358	34,008	39,388	200,662	
1960	13,849	9,701	642	3,011	24,788	33,209	34,100	202,970	
1961(e)	13,625	9,690	533	3,953	24,140	32,601	40,526	223,022	
1962(e)	16,177	11,175	663	2,728	27,424	..	..	..	
1963	14,662	10,601	691	2,035	25,894	..	..	..	

For footnotes and sources see the following page.

(Cont'd)

Table 4  
(Concluded)

- (a) Includes radio and television receiving tubes for military purposes prior to 1959. In subsequent years includes entertainment tubes only, while the military receiving tubes are included under "Electronic Tubes, Other".
- (b) With the exception of the year 1952, television picture tubes were not reported separately prior to 1958; they are included under "Electronic Tubes, Other".
- (c) Includes industrial, military and other power tubes and, beginning in 1959, military radio and television receiving tubes.
- (d) Includes complete equipment, such as sonar, closed circuit television, tape recorders or sound equipment, as well as components, such as resistors or semiconductor devices, which are not reported separately. It may also include types of equipment and components which are not under review in Reference 123.
- (e) Preliminary.

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Source: DBS Cat. No. 43-004, 43-201, 43-205 and 43-206.



Table 5

ENTERTAINMENT EQUIPMENT AVAILABLE FROM CANADIAN PRODUCTION  
1962 Season

<u>Type of Equipment</u>	<u>Number of Models(a)</u>
Radio receiving sets:	
Home - clock	38
- other	52
Portable	14
Auto	31
Television receiving sets:	
Console - 19"	4
- 23"	175
- other	2
Table - 19"	12
- 23"	39
Portable - 17"	7
- 19"	45
- other	1
Record players:	
With amplifiers	98
Without amplifiers	1
Combinations:	
Radio-phonograph	166
Radio-phonograph-television	56

(a) Exclusive of variations in colour or cabinet finish.

Source: The Tariff Board. Based on a survey of principal manufacturers.

Table 6

CANADIAN SHIPMENTS OF RADIO RECEIVING SETS, BY TYPE  
1940 to 1963

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<u>Year</u>	<u>Home Sets</u>	<u>Portables</u>	<u>Auto</u>	<u>Combinations</u>	<u>TOTAL<sup>(a)</sup></u>
	T h o	u s a n	d s	o f U n i	t s
1940	385	17	29	8	439
1941	337	16	30	17	400
1942	185	4	7	14	209
1943	..	..	..	..	23
1944	..	..	..	..	-
1945	..	..	..	..	44
1946	494	5	22	48	569
1947	622	22	76	118	836
1948	383	38	58	118	596
1949	433	60	137	94	725
1950	458	49	128	122	758
1951	331	25	122	95	575
1952	355	24	104	85	569
1953	343	31	182	65	620
1954	308	22	109	48	487
1955	337	35	203	35	610
1956	388	55	222	44	709
1957	368	65	235	53	722
1958	343	84	215	53	695
1959	360	103	240	67	770
1960	302	91	237	67	696
1961	242	54	233	84	613
1962	251	22	305	110	689
1963	272	16	394	128	810

Source: DBS Cat. No. 43-004.

(a) Figures in this table are based on monthly returns and the totals shown may not necessarily agree with the annual figures shown in Table 4; the latter are considered by DBS to be the more accurate.

## CANADIAN SUPPLY OF ELECTRON TUBES IN 1962, BY SOURCE

	Canadian Production	United Kingdom	United States	Japan	Other	Total Imports	TOTAL SUPPLY
Receiving Tubes: 184 popular(a)							
Qty. in '000	16,345	1,807 (1,466)	1,794 ( 878)	2,008 (1,862)	731 (157)	6,340 (4,363)	22,685
No. of types	146	84 (81)	173 ( 49)	94 (93)	35 (23)	181 (180)	184
Other							
Qty. in '000	770	147 ( 22)	1,441 ( 110)	61 (31)	226 ( 9)	1,875 ( 172)	2,645
No. of types	85	100 ( 67)	939 ( 8)	40 (15)	49 ( 4)	973 ( 85)	987
Total							
Qty. in '000	17,115	1,954 (1,488)	3,235 ( 988)	2,069 (1,893)	957 (166)	8,215 (4,535)	25,330
No. of types	231	184 (148)	1,112 ( 57)	134 (108)	84 (27)	1,154 ( 265)	1,171
TV Picture Tubes							
Qty. in '000	559	*	4	-	*	4	563
No. of types	150	(b)	84	-	(b)	84	212
Other Tubes							
Qty. in '000	858	75	1,116	8	239	1,438 ( 55)	2,296
No. of types	53	377	1,995	25	69	2,450 ( 25)	2,478
TOTAL ALL TUBES							
Qty. in '000	18,532	2,029	4,355	2,077	1,196	9,657	28,189
No. of types	434	561	3,191	159	153	3,688	3,861

Figures in brackets denote imported tubes of types identical with those produced in Canada during 1962.  
 (a) Includes types of tubes the total Canadian supply of which during 1962 was in excess of 25,000 units each.  
 (b) Cannot be disclosed without revealing information which may be considered confidential.

Source: The Tariff Board. Based on a survey of Canadian manufacturers and importers.





APPENDIX CIMPORT STATISTICS

<u>Table</u>	<u>Description</u>	<u>Statistical Class No.</u>	<u>Tariff Item</u>
1	Radio receiving sets, 1947 to 1963	6173	445d
2	Radio-phonograph sets, 1962 and 1963	6181	597a(2) 445d
3	Radio receiving sets, transistor type n.o.p., 1962 and 1963	6182	445d
4	Radio receiving sets n.o.p., 1962 and 1963	6183	445d
5	Television receiving sets, 1953 to 1963	6174	445d
6	Radio and wireless apparatus n.o.p., and parts, 1947 to 1963	6167	445d 443e(2)
7	Phonographs, graphophones, gramophones, and parts n.o.p., 1947 to 1963	9120	Ex. 597a(2) 597a(2) 445o(2)
8	Phonographs, coin-operated, 1947 to 1963	9124	597a(2)
9	Tape or wire recorders, and parts, 1957 to 1963	6178	445k
10	Sound equipment n.o.p., including pub- lic address systems and parts; tape or wire for the recording and repro- duction of sound; and records for use in broadcasting, 1948 to 1963	6177	445k 462i 595(1) 595(2) 597a(2)
11	Electronic tubes n.o.p., 1947 to 1963	6166	445d 445k
12	Glass bulbs for electronic tubes and tele- vision picture tubes, 1961 to 1963	7078	445q 445s
13	Electronic tube parts n.o.p., 1947 to 1963	6176	445p 445q 445s 445u

(Cont'd)

(Concluded)

<u>Table</u>	<u>Description</u>	<u>Statistical Class No.</u>	<u>Tariff Item</u>
14	Transistors, 1959 to 1963	6150	445d 445k
15	Semiconductors except transistors, and parts of semiconductors, 1960 to 1963	6149	445d 445k 445v
16	Transformers and complete parts n.o.p., 1947 to 1963	6165	445f
17	Articles used in the manufacture of appa- ratus using radio tubes, 1947 to 1963	6175	445o(1) 445o(3) 445o(4)

Source: DBS Cat. No. 65-203 and 65-007.



Table 1

Imports: Radio receiving sets, s.c. 6173(a)

Tariff item 445d

Year	Quantity	Value	Unit	Duty	Duty as per cent of	
	No.	\$'000	Value	Collected	Total	Dutiable
			\$	\$'000	Value	Value
<u>1. Total</u>						
1947	67,979	2,214	32.58	553	25.0	25.0
1948	1,886	271	143.92	53	19.7	20.0
1949	1,882	203	108.07	38	18.4	20.0
1950	2,826	254	89.88	41	16.1	20.0
1951	9,312	583	62.62	110	18.8	20.0
1952	19,476	1,345	69.06	228	16.9	20.0
1953	24,364	1,254	51.45	242	19.3	20.0
1954	15,781	921	58.37	169	18.3	20.0
1955	39,938	1,306	32.69	253	19.4	20.0
1956	78,393	2,169	27.66	414	19.1	20.0
1957	146,806	2,944	20.05	558	19.0	20.0
1958	289,631	6,553	22.62	1,264	19.3	20.0
1959	576,306	11,657	20.23	2,271	19.5	20.0
1960	731,511	11,852	16.20	2,307	19.5	20.0
1961	1,080,605	13,788	12.76	2,640	19.1	20.0
1962(b)	820,095	11,751	14.33	2,747	23.4	24.4
1963(b)	937,064	11,097	11.84	2,264	20.4	21.0
<u>2. United Kingdom</u>						
1947	13	1	85.31	-	-	-
1948	26	3	127.00	-	-	-
1949	53	16	297.74	-	-	-
1950	291	48	163.34	-	-	-
1951	283	32	114.59	-	-	-
1952	2,164	190	87.64	-	-	-
1953	845	37	44.34	1	1.5	20.0
1954	531	43	80.56	*	0.5	20.0
1955	836	36	42.60	-	-	-
1956	2,733	97	35.54	*	0.2	20.0
1957	4,349	150	34.57	-	-	-
1958	7,240	224	30.89	*	*	20.0
1959	11,590	301	26.00	*	0.1	24.0
1960	13,856	348	25.09	7	2.0	22.4
1961	28,450	546	19.19	11	2.1	19.2
1962(b)	17,063	423	24.81	14	3.4	10.1
1963(b)	4,535	100	22.04	2	2.3	10.1

(Cont'd)

Table 1  
(Cont'd)

<u>Year</u>	<u>Quantity</u>	<u>Value</u>	<u>Unit</u>	<u>Duty</u>	<u>Duty as per cent of</u>	
	<u>No.</u>	<u>\$'000</u>	<u>Value</u>	<u>Collected</u>	<u>Total</u>	<u>Dutiable</u>
			<u>\$</u>	<u>\$'000</u>	<u>Value</u>	<u>Value</u>
<u>3. United States</u>						
1947	67,964	2,213	32.56	553	25.0	25.0
1948	1,849	267	144.35	53	19.9	20.0
1949	1,829	188	102.57	38	20.0	20.0
1950	2,526	206	81.54	41	19.8	20.0
1951	9,019	550	60.96	109	19.9	20.0
1952	17,280	1,154	66.78	227	19.7	20.0
1953	23,221	1,204	51.85	239	19.9	20.0
1954	14,556	852	58.57	164	19.2	20.0
1955	36,684	1,185	32.31	236	19.9	20.0
1956	52,738	1,611	30.55	322	20.0	20.0
1957	56,735	1,522	26.83	304	20.0	20.0
1958	74,824	2,401	32.08	479	19.9	20.0
1959	82,194	2,321	28.24	463	20.0	20.0
1960	78,540	2,219	28.26	443	19.9	20.0
1961	106,300	2,480	23.33	494	19.9	20.0
1962(b)	75,825	1,923	25.36	463	24.1	24.4
1963(b)	100,088	1,957	19.55	414	21.2	21.3
<u>4. Germany(c)</u>						
1947-51	-	-	-	-	-	-
1952	18	1	58.28	*	20.0	20.0
1953	282	11	38.95	2	20.0	20.0
1954	668	24	36.02	5	20.0	20.0
1955	1,157	59	51.34	12	20.0	20.0
1956	5,577	302	54.24	60	20.0	20.0
1957	8,371	498	59.51	100	20.0	20.0
1958	30,474	1,585	52.03	317	20.0	20.0
1959	60,576	3,319	54.79	664	20.0	20.0
1960	56,946	2,982	52.37	597	20.0	20.0
1961	53,914	2,888	53.58	578	20.0	20.0
1962(b)	48,897	2,491	50.94	609	24.4	24.4
1963(b)	38,699	1,831	47.33	393	21.5	21.5

(Cont'd)

Table 1  
(Concluded)

<u>Year</u>	<u>Quantity</u>	<u>Value</u>	<u>Unit</u>	<u>Duty</u>	<u>Duty as per cent of</u>	
	<u>No.</u>	<u>\$'000</u>	<u>Value</u>	<u>Collected</u>	<u>Total</u>	<u>Dutiable</u>
			<u>\$</u>	<u>\$'000</u>	<u>Value</u>	<u>Value</u>
<u>5. Netherlands</u>						
1947	1	*	81.00	*	24.7	24.7
1948	6	*	74.17	*	20.0	20.0
1949	-	-	-	-	-	-
1950	9	1	55.89	*	20.0	20.0
1951	10	1	86.00	*	20.0	20.0
1952	10	*	20.80	*	19.7	19.7
1953	7	*	60.14	*	14.3	20.0
1954	23	1	64.96	*	20.0	20.0
1955	41	13	306.20	3	20.0	20.0
1956	464	18	38.52	4	20.0	20.0
1957	7,957	178	22.35	36	20.0	20.0
1958	18,570	435	23.42	87	20.0	20.0
1959	23,537	540	22.95	108	20.0	20.0
1960	31,122	479	15.41	96	20.0	20.0
1961	25,458	443	17.41	89	20.0	20.0
1962 <sup>(b)</sup>	26,922	549	20.38	139	25.3	25.3
1963 <sup>(b)</sup>	23,345	500	21.43	109	21.8	21.8
<u>6. Japan</u>						
1947-53	-	-	-	-	-	-
1954	1	*	100.00	-	-	-
1955	1,213	12	10.17	2	20.0	20.0
1956	16,828	137	8.12	27	20.0	20.0
1957	69,233	589	8.51	118	20.0	20.0
1958	156,824	1,865	11.89	373	20.0	20.0
1959	395,240	5,117	12.95	1,024	20.0	20.0
1960	531,022	5,546	10.44	1,109	20.0	20.0
1961	839,696	7,072	8.42	1,415	20.0	20.0
1962 <sup>(b)</sup>	589,637	5,689	9.65	1,415	24.9	24.9
1963 <sup>(b)</sup>	668,374	5,930	8.87	1,235	20.8	20.8

(a) Prior to 1953 included television receiving sets, subsequently classified separately under s.c. 6174 (Table 5). Beginning in 1962 subdivided into s.c. 6181, 6182 and 6183 (Tables 2, 3 and 4).

(b) Not published. Obtained by adding imports under s.c. 6181, 6182 and 6183, shown in Tables 2, 3 and 4.

(c) West Germany only.



Table 2Imports: Radio-phonograph sets, s.c. 6181

Tariff items 597a(2), 445d

<u>Year</u>	<u>Quantity</u> <u>No.</u>	<u>Value</u> <u>\$'000</u>	<u>Unit</u> <u>Value</u> <u>\$</u>	<u>Duty</u> <u>Collected</u> <u>\$'000</u>	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>						
1962 (a)	14,981	1,424	95.04	352	24.7	24.7
1963	12,716	1,189	93.54	261	22.0	22.0
<u>2. United Kingdom</u>						
1962 (a)	52	3	60.33	*	14.3	15.0
1963	-	-	-	-	-	-
<u>3. United States</u>						
1962 (a)	652	127	195.12	36	28.2	28.2
1963	1,170	199	170.20	44	21.9	21.9
<u>4. Germany</u> <sup>(b)</sup>						
1962 (a)	12,842	1,253	97.54	306	24.4	24.4
1963	10,218	942	92.18	207	21.9	21.9
<u>5. Japan</u>						
1962 (a)	1,435	41	28.53	10	23.6	23.6
1963	1,263	46	36.13	10	22.5	22.5

(a) Prior to 1962 included in s.c. 6173 (Table 1).

(b) West Germany only.

Table 3

Imports: Radio receiving sets, transistor type n.o.p., s.c. 6182

Tariff item 445d

<u>Year</u>	<u>Quantity</u> <u>No.</u>	<u>Value</u> \$'000	<u>Unit</u> <u>Value</u> \$	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Dutiable</u> <u>Value</u> <u>Value</u>	
<u>1. Total</u>						
1962 <sup>(a)</sup>	623,962	7,009	11.23	1,656	23.6	24.6
1963	768,832	7,610	9.90	1,522	20.0	20.8
<u>2. United Kingdom</u>						
1962 <sup>(a)</sup>	8,876	152	17.11	6	4.0	10.0
1963	2,528	64	25.42	2	3.2	10.0
<u>3. United States</u>						
1962 <sup>(a)</sup>	26,530	390	14.69	96	24.6	24.6
1963	66,949	831	12.41	171	20.6	20.6
<u>4. Ireland</u>						
1962 <sup>(a)</sup>	23,080	348	15.06	24	6.8	14.7
1963	21,267	276	12.96	2	.9	5.6
<u>5. Germany</u> <sup>(b)</sup>						
1962 <sup>(a)</sup>	9,926	266	26.84	72	26.9	26.9
1963	12,508	364	29.13	75	20.7	20.7
<u>6. Netherlands</u>						
1962 <sup>(a)</sup>	21,784	435	19.97	111	25.6	25.6
1963	15,729	347	22.08	78	22.3	22.3
<u>7. Japan</u>						
1962 <sup>(a)</sup>	497,665	5,150	10.35	1,282	24.9	24.9
1963	572,641	5,334	9.32	1,110	20.8	20.8

(a) Prior to 1962 included in s.c. 6173 (Table 1).

(b) West Germany only.

Table 4Imports: Radio receiving sets n.o.p., s.c. 6183

Tariff item 445d

<u>Year</u>	<u>Quantity</u> <u>No.</u>	<u>Value</u> <u>\$'000</u>	<u>Unit</u> <u>Value</u> <u>\$</u>	<u>Duty</u> <u>Collected</u> <u>\$'000</u>	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>						
1962 (a)	181,152	3,317	18.31	739	22.3	23.8
1963	155,516	2,298	14.78	481	20.9	21.4
<u>2. United Kingdom</u>						
1962 (a)	8,135	268	32.97	8	2.9	10.0
1963	2,007	36	17.78	*	.7	9.4
<u>3. United States</u>						
1962 (a)	48,643	1,406	28.90	332	23.6	24.0
1963	31,969	926	28.98	199	21.5	21.8
<u>4. Germany</u> <sup>(b)</sup>						
1962 (a)	26,129	972	37.20	231	23.8	23.8
1963	15,973	525	32.89	111	21.2	21.2
<u>5. Netherlands</u>						
1962 (a)	5,138	114	22.11	27	24.0	24.0
1963	7,616	153	20.11	31	20.5	20.5
<u>6. Japan</u>						
1962 (a)	90,537	497	5.49	124	24.9	24.9
1963	94,470	550	5.82	115	20.9	20.9

(a) Prior to 1962 included in s.c. 6173 (Table 1).

(b) West Germany only.



Table 5

Imports: Television receiving sets, s.c. 6174

Tariff item 445d

<u>Year</u>	<u>Quantity</u> <u>No.</u>	<u>Value</u> \$'000	<u>Unit</u> <u>Value</u> \$	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>						
1953 <sup>(a)</sup>	16,973	2,254	132.78	387	17.2	20.0
1954	19,085	2,080	109.01	415	20.0	20.0
1955	6,012	513	85.33	102	19.9	20.0
1956	8,341	790	94.70	157	19.9	20.0
1957	4,036	397	98.39	79	20.0	20.0
1958	13,960	1,929	138.19	386	20.0	20.0
1959	12,735	1,743	136.88	341	19.6	20.0
1960	14,255	2,003	140.54	400	20.0	20.0
1961	21,362	3,076	144.01	615	20.0	20.0
1962	16,364	2,651	161.97	645	24.3	24.4
1963	24,192	3,480	143.87	754	21.7	21.7
<u>2. United Kingdom</u>						
1953 <sup>(a)</sup>	1,596	318	199.20	-	-	-
1954	7	4	623.14	-	-	-
1955	10	1	79.40	-	-	-
1956	-	-	-	-	-	-
1957	2	*	111.00	-	-	-
1958	1	*	104.00	-	-	-
1959	260	38	145.93	-	-	-
1960	22	3	117.91	-	-	-
1961	1	*	52.00	-	-	-
1962	7	2	313.43	*	2.9	10.2
1963	4	1	373.75	*	6.2	6.2

(Cont'd)

Table 5  
(Concluded)

<u>Year</u>	<u>Quantity</u>	<u>Value</u>	<u>Unit</u>	<u>Duty</u>	<u>Duty as per cent of</u>	
	<u>No.</u>	<u>\$'000</u>	<u>Value</u>	<u>Collected</u>	<u>Total</u>	<u>Dutiable</u>
			<u>\$</u>	<u>\$'000</u>	<u>Value</u>	<u>Value</u>
<u>3. United States</u>						
1953 <sup>(a)</sup>	15,377	1,936	125.88	387	20.0	20.0
1954	19,076	2,076	108.82	415	20.0	20.0
1955	6,002	512	85.34	102	20.0	20.0
1956	8,337	789	94.61	157	19.9	20.0
1957	4,010	392	97.70	78	20.0	20.0
1958	13,923	1,923	138.10	385	20.0	20.0
1959	12,430	1,698	136.65	340	20.0	20.0
1960	14,220	1,998	140.50	400	20.0	20.0
1961	21,317	3,072	144.09	615	20.0	20.0
1962	15,224	2,531	166.23	611	24.1	24.1
1963	19,800	3,096	156.36	667	21.5	21.5
<u>4. Germany<sup>(b)</sup></u>						
1953 <sup>(a)</sup> -55	-	-	-	-	-	-
1956	4	1	299.25	*	20.0	20.0
1957	21	5	222.95	1	20.0	20.0
1958	24	6	236.63	1	20.0	20.0
1959	20	4	195.55	1	20.0	20.0
1960	13	3	225.00	1	20.0	20.0
1961	3	1	336.67	*	20.0	20.0
1962	12	3	283.83	1	21.0	21.0
1963	7	1	111.00	*	21.9	21.9

<sup>(a)</sup> Prior to 1953 included in s.c. 6173 (Table 1).

<sup>(b)</sup> West Germany only.

Table 6

Imports: Radio and wireless apparatus n.o.p., and parts, s.c. 6167

Tariff items 445d, 443e(2)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1947	6,908	1,629	23.6	25.0
1948	5,639	959	17.0	20.0
1949	6,783	1,285	18.9	20.0
1950	9,449	1,596	16.9	20.0
1951	13,632	2,427	17.8	20.0
1952	21,972	4,022	18.3	20.0
1953	41,695	7,388	17.7	20.0
1954	58,454	10,239	17.5	20.0
1955	61,002	10,896	17.9	20.0
1956	44,727	7,772	17.4	20.0
1957	34,059	5,927	17.4	20.0
1958	33,287	5,653	17.0	20.0
1959	32,778	5,230	16.0	20.0
1960	36,468	5,468	15.0	20.0
1961	41,322	6,023	14.6	20.0
1962	49,791	9,079	18.2	23.2
1963	44,470	6,532	14.7	20.9
<u>2. United Kingdom</u>				
1947	392	-	-	-
1948	769	-	-	-
1949	331	*	.1	20.0
1950	1,104	1	.1	20.0
1951	1,463	*	*	19.8
1952	1,716	-	-	-
1953	2,783	14	.5	18.5
1954	4,700	9	.2	16.6
1955	4,706	6	.1	15.1
1956	5,153	3	.1	14.9
1957	4,069	3	.1	12.5
1958	4,313	2	*	17.6
1959	6,150	53	.9	14.8
1960	8,818	30	.3	15.6
1961	10,528	28	.3	15.2
1962	8,034	366	4.6	10.0
1963	8,465	171	2.0	7.9

(Cont'd)



Table 6  
(Cont'd)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>				
1947	6,486	1,621	25.0	25.0
1948	4,859	957	19.7	20.0
1949	6,436	1,282	19.9	20.0
1950	8,264	1,579	19.1	20.0
1951	12,082	2,409	19.9	20.0
1952	20,129	3,997	19.9	20.0
1953	38,604	7,313	18.9	20.0
1954	53,264	10,132	19.0	20.0
1955	55,879	10,809	19.3	20.0
1956	39,938	7,643	19.6	20.0
1957	29,134	5,753	19.7	20.0
1958	27,757	5,408	19.5	20.0
1959	24,889	4,830	19.4	20.0
1960	26,025	5,114	19.7	20.0
1961	28,696	5,579	19.4	20.0
1962	38,528	7,932	20.6	24.5
1963	32,754	5,665	17.3	21.9
<u>4. Germany</u> (a)				
1947-52	-	-	-	-
1953	2	*	16.7	20.0
1954	56	11	20.0	20.0
1955	36	7	19.9	20.0
1956	105	21	20.0	20.0
1957	223	44	19.7	20.0
1958	489	98	20.0	20.0
1959	491	98	20.0	20.0
1960	378	76	20.0	20.0
1961	739	148	20.0	20.0
1962	640	155	24.1	24.2
1963	788	170	21.5	21.6

(Cont'd)

Table 6  
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>5. Netherlands</u>				
1947	4	1	25.0	25.0
1948	12	2	20.0	20.0
1949	16	3	20.0	20.0
1950	73	15	20.0	20.0
1951	77	15	20.0	20.0
1952	121	24	20.0	20.0
1953	283	57	20.0	20.0
1954	377	75	20.0	20.0
1955	348	70	20.0	20.0
1956	364	73	20.0	20.0
1957	458	92	20.0	20.0
1958	464	92	19.9	20.0
1959	511	102	20.0	20.0
1960	700	139	19.8	20.0
1961	619	122	19.8	20.0
1962	845	208	24.6	24.6
1963	1,007	217	21.5	21.5
<u>6. Japan</u>				
1947-53	-	-	-	-
1954	1	*	20.0	20.0
1955	6	1	20.0	20.0
1956	33	7	20.0	20.0
1957	103	21	20.0	20.0
1958	178	36	20.0	20.0
1959	362	72	20.0	20.0
1960	378	76	20.0	20.0
1961	437	87	19.9	20.0
1962	668	172	25.8	25.8
1963	752	164	21.7	21.8

(a) West Germany only.

Table 7

Imports: Phonographs, graphophones, gramophones, and parts n.o.p.,  
s.c. 9120

Tariff items 597a(2), Ex. 597a(2), 445o(2)(a)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1947	1,021	247	24.2	24.2
1948	424	85	19.9	19.9
1949	332	66	20.0	20.0
1950	524	103	19.7	19.7
1951	738	145	19.7	19.7
1952	484	91	18.8	18.8
1953	690	130	18.9	18.9
1954	894	171	19.1	19.2
1955	801	152	18.9	19.1
1956	1,132	216	19.0	19.3
1957	1,671	307	18.4	18.5
1958	2,008	372	18.5	18.6
1959	2,047	374	18.3	18.4
1960	1,574	286	18.2	18.3
1961	3,384	411	12.2	12.3
1962	6,039	821	13.6	13.7
1963	6,385	710	11.1	11.2
<u>2. United Kingdom</u>				
1947	34	3	7.5	7.5
1948	7	1	14.7	14.7
1949	3	1	15.0	15.0
1950	31	5	15.0	15.0
1951	24	4	14.9	14.9
1952	9	1	14.7	14.7
1953	26	4	14.5	14.5
1954	35	5	14.8	14.8
1955	47	7	14.9	14.9
1956	64	10	14.9	14.9
1957	109	16	14.7	14.7
1958	188	28	14.8	14.8
1959	274	39	14.2	14.7
1960	203	30	14.7	14.7
1961	1,733	142	8.2	8.2
1962	3,710	410	11.0	11.1
1963	4,159	374	9.0	9.0

(Cont'd)



Table 7  
(Cont'd)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>				
1947	971	240	24.7	24.7
1948	416	83	20.0	20.0
1949	326	65	20.0	20.0
1950	492	98	20.0	20.0
1951	691	137	19.8	19.8
1952	473	89	18.9	18.9
1953	655	125	19.0	19.1
1954	796	153	19.2	19.4
1955	593	112	19.0	19.2
1956	917	176	19.2	19.5
1957	1,429	265	18.5	18.7
1958	1,677	317	18.9	19.0
1959	1,305	243	18.6	18.7
1960	983	180	18.3	18.5
1961	1,211	209	17.2	17.6
1962	1,572	291	18.5	18.9
1963	1,335	204	15.3	16.0
<u>4. Germany</u> <sup>(b)</sup>				
1947-50	-	-	-	-
1951	1	*	20.0	20.0
1952	1	*	16.8	16.8
1953	1	*	20.0	20.0
1954	4	1	19.8	19.8
1955	30	6	20.0	20.0
1956	39	8	20.0	20.0
1957	29	6	19.7	19.7
1958	51	10	19.7	19.7
1959	198	39	19.8	19.8
1960	171	34	19.8	19.8
1961	183	22	12.3	12.3
1962	441	59	13.5	13.6
1963	434	51	11.7	11.7

(Cont'd)

Table 7  
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>5. Netherlands</u>				
1947-52	-	-	-	-
1953	1	*	19.1	19.1
1954	46	9	19.9	19.9
1955	114	23	20.0	20.0
1956	90	18	20.0	20.0
1957	38	7	19.4	19.4
1958	23	5	19.5	19.5
1959	152	30	19.8	19.8
1960	66	13	19.6	19.6
1961	138	15	11.2	11.2
1962	161	24	15.1	15.2
1963	285	47	16.3	16.3
<u>6. Japan</u>				
1947	-	-	-	-
1948	*	*	30.0	30.0
1949	2	1	30.0	30.0
1950	-	-	-	-
1951	2	1	30.0	30.0
1952	1	*	30.0	30.0
1953	-	-	-	-
1954	*	*	15.7	15.7
1955	*	*	17.2	17.2
1956	5	1	19.1	19.1
1957	42	8	19.3	19.3
1958	55	10	19.1	19.1
1959	103	20	19.5	19.5
1960	105	20	19.5	19.5
1961	73	15	19.9	19.9
1962	95	21	22.6	22.6
1963	88	18	20.8	20.8

(a) Tariff item 4450(1) prior to June 21, 1961.

(b) Beginning in 1952 West Germany only.

Table 8Imports: Phonographs, coin-operated, s.c. 9124

Tariff item 597a(2)

<u>Year</u>	<u>Quantity</u>	<u>Value</u>	<u>Unit</u>	<u>Duty</u>	<u>Duty as per cent of</u>	
	<u>No.</u>	<u>\$'000</u>	<u>Value</u>	<u>Collected</u>	<u>Total</u>	<u>Dutiable</u>
			<u>\$</u>	<u>\$'000</u>	<u>Value</u>	<u>Value</u>
			<u>1. Total</u>			
1947	2,036	751	368.91	186	24.8	24.8
1948	178	95	533.86	19	20.0	20.0
1949	1	*	221.00	*	20.0	20.0
1950	257	118	458.47	24	20.0	20.0
1951	1,186	433	365.19	87	20.0	20.0
1952	1,459	499	341.69	100	20.0	20.0
1953	2,217	840	379.09	168	20.0	20.0
1954	1,631	784	480.90	157	20.0	20.0
1955	1,585	894	564.17	179	20.0	20.0
1956	1,992	1,180	592.59	236	20.0	20.0
1957	2,284	1,404	614.69	281	20.0	20.0
1958	1,320	811	614.32	162	20.0	20.0
1959	1,607	1,055	656.72	211	20.0	20.0
1960	1,237	698	564.14	140	20.0	20.0
1961	1,030	566	549.98	113	20.0	20.0
1962	1,367	956	699.67	220	23.0	23.0
1963	1,703	1,043	612.70	220	21.1	21.1

2. United States

1947	2,036	751	368.91	186	24.8	24.8
1948	178	95	533.86	19	20.0	20.0
1949	1	*	221.00	*	20.0	20.0
1950	257	118	458.47	24	20.0	20.0
1951	1,186	433	365.19	87	20.0	20.0
1952	1,459	499	341.69	100	20.0	20.0
1953	2,217	840	379.09	168	20.0	20.0
1954	1,631	784	480.90	157	20.0	20.0
1955	1,585	894	564.17	179	20.0	20.0
1956	1,992	1,180	592.59	236	20.0	20.0
1957	2,284	1,404	614.69	281	20.0	20.0
1958	1,319	811	614.53	162	20.0	20.0
1959	1,607	1,055	656.72	211	20.0	20.0
1960	1,237	698	564.14	140	20.0	20.0
1961	1,030	566	549.98	113	20.0	20.0
1962	1,367	956	699.67	220	23.0	23.0
1963	1,584	979	618.31	206	21.1	21.1



Table 9

Imports: Tape or wire recorders, and parts, s.c. 6178

Tariff item 445k

<u>Year</u>	<u>Quantity</u> <u>No.</u>	<u>Value</u> <u>\$'000</u>	<u>Unit</u> <u>Value</u> <u>\$</u>	<u>Duty</u> <u>Collected</u> <u>\$'000</u>	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>						
1957(a)	16,484	1,918	116.37	395	20.6	22.3
1958	21,395	2,299	107.44	478	20.8	22.3
1959	22,780	3,407	149.58	716	21.0	22.4
1960	31,146	4,461	143.24	871	19.5	22.2
1961	52,402	5,026	95.91	896	17.8	22.2
1962	93,570	5,421	57.93	1,112	20.5	24.4
1963	94,816	5,263	55.50	1,041	19.8	22.4
<u>2. United Kingdom</u>						
1957(a)	366	46	124.94	7	14.7	15.1
1958	705	65	91.93	10	14.9	15.0
1959	244	33	134.59	5	14.8	15.1
1960	802	96	119.53	14	15.0	15.0
1961	1,200	147	122.72	21	14.4	15.0
1962	789	221	280.28	29	12.9	13.1
1963	1,751	270	154.34	42	15.6	15.9
<u>3. United States</u>						
1957(a)	14,743	1,771	120.15	366	20.7	22.5
1958	13,529	1,774	131.14	365	20.6	22.5
1959	9,601	2,651	276.12	549	20.7	22.5
1960	8,021	2,937	366.19	535	18.2	22.3
1961	6,064	2,746	452.84	397	14.5	22.5
1962	8,007	2,279	284.67	352	15.4	24.7
1963	8,077	2,008	248.65	325	16.2	23.1
<u>4. Germany(b)</u>						
1957(a)	419	34	80.29	8	22.5	22.5
1958	2,065	170	82.49	38	22.5	22.5
1959	4,589	262	57.03	59	22.5	22.5
1960	4,538	362	79.83	81	22.5	22.6
1961	5,825	536	91.98	120	22.4	22.5
1962	7,222	713	98.75	176	24.6	24.6
1963	6,623	731	110.33	169	23.1	23.1

(Cont'd)

Table 9  
(Concluded)

<u>Year</u>	<u>Quantity</u> No.	<u>Value</u> \$'000	<u>Unit</u> <u>Value</u> \$	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>5. Netherlands</u>						
1957(a)	910	56	61.58	12	22.1	22.5
1958	4,671	263	56.29	59	22.5	22.5
1959	6,571	383	58.24	86	22.5	22.5
1960	13,449	890	66.21	200	22.5	22.5
1961	14,645	984	67.17	221	22.5	22.5
1962	19,535	998	51.08	253	25.3	25.3
1963	12,112	932	76.91	212	22.7	22.7
<u>6. Japan</u>						
1957(a)	6	1	171.17	*	22.5	22.5
1958	335	15	44.11	3	22.5	22.5
1959	1,634	63	38.63	14	22.5	22.5
1960	4,124	154	37.35	34	22.3	22.4
1961	23,922	563	23.54	126	22.4	22.5
1962	56,998	1,136	19.93	285	25.1	25.1
1963	65,806	1,263	19.19	280	22.2	22.2

(a) Prior to 1957 included in s.c. 6177 (Table 10).

(b) West Germany only.

Table 10

Imports: Sound equipment n.o.p., including public address systems and parts; tape or wire for the recording and reproduction of sound; and records for use in broadcasting, s.c. 6177

Tariff items 445k, 462i, 595(1), 595(2), 595a, 597a(2)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1948(a)	350	74	21.2	21.5
1949	622	131	21.0	21.0
1950	741	156	21.0	21.2
1951	1,136	235	20.7	21.3
1952	1,355	262	19.3	20.9
1953	1,993	383	19.2	20.8
1954	2,694	512	19.0	20.9
1955	2,807	519	18.5	20.7
1956	4,038	750	18.6	20.7
1957	2,851	518	18.2	18.9
1958	3,033	555	18.3	19.3
1959	3,744	691	18.5	19.9
1960	4,497	753	16.7	18.9
1961	4,761	785	16.5	18.8
1962	6,471	1,196	18.5	22.4
1963	6,253	1,137	18.2	20.3
<u>2. United Kingdom</u>				
1948(a)	3	*	15.0	15.0
1949	20	3	15.0	15.0
1950	13	2	14.2	15.0
1951	15	2	15.0	15.0
1952	49	6	13.1	14.9
1953	69	9	13.0	14.9
1954	125	17	13.9	15.0
1955	83	12	14.3	15.0
1956	99	13	13.5	14.9
1957	173	25	14.7	14.9
1958	229	33	14.3	14.7
1959	277	36	13.1	14.8
1960	449	50	11.1	11.7
1961	227	28	12.5	13.9
1962	258	45	17.4	18.2
1963	274	42	15.5	15.9

(Cont'd)



Table 10  
(Cont'd)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>				
1948(a)	347	74	21.2	21.5
1949	603	128	21.2	21.2
1950	727	154	21.1	21.3
1951	1,121	233	20.8	21.4
1952	1,290	253	19.6	21.2
1953	1,921	373	19.4	21.0
1954	2,518	484	19.2	21.2
1955	2,686	499	18.6	20.9
1956	3,701	685	18.5	20.7
1957	2,610	480	18.4	19.2
1958	2,702	502	18.6	19.7
1959	3,173	593	18.7	20.1
1960	3,717	636	17.1	19.6
1961	4,049	659	16.3	18.9
1962	5,594	1,008	18.0	22.5
1963	5,125	929	18.1	20.7
<u>4. Germany(b)</u>				
1948(a)-51	-	-	-	-
1952	10	2	16.1	16.1
1953	2	*	21.1	21.1
1954	3	*	18.6	21.3
1955	8	2	22.4	22.4
1956	26	5	18.2	21.7
1957	12	2	15.5	18.8
1958	38	7	18.5	20.6
1959	135	28	20.5	20.5
1960	126	26	20.7	20.8
1961	155	29	18.6	18.7
1962	157	36	22.7	22.8
1963	186	33	17.5	17.5

(Cont'd)

Table 10  
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>5. Netherlands</u>				
1948(a)-53	-	-	-	-
1954	38	8	22.1	22.1
1955	26	6	21.7	21.7
1956	190	43	22.3	22.3
1957	18	3	15.9	15.9
1958	14	3	18.7	18.7
1959	51	11	21.9	21.9
1960	41	7	16.9	17.4
1961	110	21	19.1	19.1
1962	61	11	17.6	18.6
1963	124	25	20.6	20.6
<u>6. Japan</u>				
1948(a)-54	-	-	-	-
1955	1	*	22.5	22.5
1956	12	3	22.5	22.5
1957	24	5	22.5	22.5
1958	40	9	22.5	22.5
1959	75	17	22.4	22.4
1960	127	28	22.3	22.3
1961	172	38	22.3	22.3
1962	300	76	25.2	25.2
1963	307	69	22.4	22.4

(a) From June 1, 1948 only.

(b) West Germany only.

Table 11Imports: Electronic tubes n.o.p., s.c. 6166(a)

Tariff item 445d, 445k

<u>Year</u>	<u>Quantity</u> No. '000	<u>Value</u> \$'000	<u>Unit</u> <u>Value</u> \$	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>						
1947	3,703	1,752	.47	438	25.0	25.0
1948	938	712	.76	142	20.0	20.0
1949	1,310	1,309	1.00	258	19.7	20.0
1950	1,812	1,653	.91	322	19.5	20.0
1951	2,575	3,352	1.30	666	19.9	20.0
1952	2,752	4,960	1.80	975	19.7	20.0
1953	12,459	14,718	1.18	2,850	19.4	20.0
1954	7,213	8,803	1.22	1,714	19.5	20.0
1955	14,392	12,634	.88	2,500	19.8	20.0
1956	8,588	8,895	1.04	1,736	19.5	20.0
1957	6,410	6,495	1.01	1,272	19.6	20.0
1958	7,761	7,402	.95	1,441	19.5	20.0
1959	9,168	7,827	.85	1,481	18.9	20.0
1960	10,224	7,804	.76	1,494	19.1	20.0
1961	9,246	8,481	.92	1,622	19.1	20.0
1962	10,495	9,583	.91	2,145	22.4	23.7
1963	10,128	13,130	1.30	2,206	16.8	21.4

2. United Kingdom

1947	1	2	1.64	*	1.4	25.5
1948	*	1	4.78	-	-	-
1949	2	17	7.41	-	-	-
1950	66	39	.60	-	-	-
1951	22	25	1.14	*	1.1	20.0
1952	22	59	2.66	*	0.1	20.0
1953	24	450	19.08	3	0.6	20.0
1954	26	206	7.79	-	-	-
1955	19	105	5.46	-	-	-
1956	29	192	6.55	-	-	-
1957	72	110	1.52	-	-	-
1958	179	151	.85	1	0.8	20.0
1959	337	420	1.25	4	1.0	20.0
1960	363	350	.96	10	2.7	20.1
1961	494	374	.76	8	2.1	19.9
1962	1,740	1,024	.59	76	7.4	11.8
1963	1,901	1,880	.99	43	2.3	8.7

(Cont'd)



Table 11  
(Cont'd)

<u>Year</u>	<u>Quantity</u> No. '000	<u>Value</u> \$'000	<u>Unit</u> <u>Value</u> \$	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>						
1947	3,701	1,750	.47	438	25.0	25.0
1948	937	709	.76	142	20.0	20.0
1949	1,307	1,284	.98	257	20.0	20.0
1950	1,694	1,593	.94	318	20.0	20.0
1951	2,530	3,310	1.31	662	20.0	20.0
1952	2,706	4,855	1.79	966	19.9	20.0
1953	12,335	14,230	1.15	2,840	20.0	20.0
1954	6,871	8,476	1.23	1,690	19.9	20.0
1955	13,682	12,324	.90	2,460	20.0	20.0
1956	7,954	8,480	1.07	1,691	19.9	20.0
1957	5,604	6,052	1.08	1,205	19.9	20.0
1958	6,358	6,784	1.07	1,346	19.8	20.0
1959	5,692	6,270	1.10	1,250	19.9	20.0
1960	4,740	5,643	1.19	1,123	19.9	20.0
1961	5,658	6,701	1.18	1,333	19.9	20.0
1962	5,016	6,630	1.32	1,598	24.1	24.6
1963	4,106	8,901	2.17	1,712	19.2	22.0
<u>4. Germany</u> <sup>(b)</sup>						
1947-52	-	-	-	-	-	-
1953	*	*	1.26	*	20.0	20.0
1954	*	*	10.02	*	20.0	20.0
1955	*	1	2.39	*	20.0	20.0
1956	1	1	.52	*	20.0	20.0
1957	5	2	.41	*	20.0	20.0
1958	14	7	.47	1	19.2	20.0
1959	13	10	.80	2	19.7	20.0
1960	34	27	.78	5	19.9	20.0
1961	58	65	1.12	13	20.1	20.1
1962	132	121	.92	28	23.1	23.1
1963	127	110	.87	24	21.6	21.6

(Cont'd)

Table 11  
(Concluded)

<u>Year</u>	<u>Quantity</u> <u>No. '000</u>	<u>Value</u> <u>\$ '000</u>	<u>Unit</u> <u>Value</u> <u>\$</u>	<u>Duty</u> <u>Collected</u> <u>\$ '000</u>	<u>Duty as per cent of</u>	
					<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>5. Netherlands</u>						
1947	-	-	-	-	-	-
1948	1	1	1.50	*	20.0	20.0
1949	1	7	6.89	1	20.0	20.0
1950	52	21	.41	4	20.0	20.0
1951	23	17	.76	3	20.0	20.0
1952	24	47	1.97	9	20.0	20.0
1953	100	38	.38	8	20.0	20.0
1954	316	120	.38	24	19.9	20.0
1955	691	198	.29	40	20.0	20.0
1956	599	219	.37	44	20.0	20.0
1957	725	314	.43	63	20.0	20.0
1958	981	334	.34	67	20.0	20.0
1959	911	387	.42	77	19.9	20.0
1960	1,095	450	.41	90	20.0	20.0
1961	917	515	.56	103	20.0	20.0
1962	1,122	731	.65	183	25.1	25.1
1963	1,150	704	.61	156	22.1	22.2
<u>6. Japan</u>						
1947-56	-	-	-	-	-	-
1957	*	1	3.04	*	20.0	20.0
1958	213	67	.31	13	20.0	20.0
1959	2,205	678	.31	136	20.0	20.0
1960	3,948	1,226	.31	245	20.0	20.0
1961	2,044	701	.34	140	20.0	20.0
1962	2,355	859	.36	209	24.3	24.3
1963	2,730	1,016	.37	225	22.2	22.2

(a) Prior to 1963 included radio and television receiving and transmitting tubes only. Other tubes were classified under s.c. 6167 (Table 6) and 6170, viz.: "Electrical apparatus and complete parts n.o.p."

(b) West Germany only.

Table 12

Imports: Glass bulbs for electronic tubes and television picture  
tubes, s.c. 7078

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Tariff items 445q, 445s

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Dutiable</u> <u>Value</u> <u>Value</u>	
<u>1. Total</u>				
1961 (a)	3,991	-	-	-
1962	3,304	-	-	-
1963	2,254	-	-	-
<u>2. United States</u>				
1961 (a)	3,926	-	-	-
1962	3,166	-	-	-
1963	1,769	-	-	-
<u>3. Netherlands</u>				
1961 (a)	65	-	-	-
1962	138	-	-	-
1963	485	-	-	-

(a) Prior to 1961 included in s.c. 6176 (Table 13).



Table 13Imports: Electronic tube parts n.o.p., s.c. 6176(a)

Tariff items 445p, 445q, 445s, 445u

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1947	512	-	-	-
1948	274	-	-	-
1949	590	-	-	-
1950	1,205	-	-	-
1951	1,600	-	-	-
1952	1,877	-	-	-
1953	3,656	-	-	-
1954	4,776	-	-	-
1955	6,269	-	-	-
1956	7,347	-	-	-
1957	5,729	-	-	-
1958	7,110	-	-	-
1959	7,450	-	-	-
1960	6,751	-	-	-
1961	2,660	3	.1	21.5
1962	4,165	24	.1	27.6
1963	4,726	50	1.1	22.5

2. United Kingdom

1947	-	-	-	-
1948	-	-	-	-
1949	-	-	-	-
1950	*	-	-	-
1951	2	-	-	-
1952	1	-	-	-
1953	1	-	-	-
1954	7	-	-	-
1955	5	-	-	-
1956	57	-	-	-
1957	31	-	-	-
1958	61	-	-	-
1959	65	-	-	-
1960	70	-	-	-
1961	54	-	-	-
1962	52	-	-	-
1963	60	*	.3	15.0

(Cont'd)

Table 13  
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>				
1947	512	-	-	-
1948	274	-	-	-
1949	590	-	-	-
1950	1,205	-	-	-
1951	1,597	-	-	-
1952	1,870	-	-	-
1953	3,644	-	-	-
1954	4,763	-	-	-
1955	6,250	-	-	-
1956	7,273	-	-	-
1957	5,670	-	-	-
1958	6,951	-	-	-
1959	7,049	-	-	-
1960	6,357	-	-	-
1961	2,442	3	.1	21.5
1962	3,888	24	.1	27.6
1963	4,212	49	1.2	22.5
<u>4. Netherlands</u>				
1947	-	-	-	-
1948	-	-	-	-
1949	-	-	-	-
1950	*	-	-	-
1951	1	-	-	-
1952	7	-	-	-
1953	10	-	-	-
1954	6	-	-	-
1955	14	-	-	-
1956	16	-	-	-
1957	23	-	-	-
1958	59	-	-	-
1959	190	-	-	-
1960	287	-	-	-
1961	114	-	-	-
1962	171	-	-	-
1963	410	1	.2	22.4

(a) Prior to 1963 the description read: "Parts for the manufacture of radio tubes". Beginning in 1961 excludes glass bulbs for electronic tubes and television picture tubes classified separately under s.c. 7078 (Table 12).

Table 14

Imports: Transistors, s.c. 6150

Tariff items 445d, 445k

<u>Year</u>	<u>Quantity</u>	<u>Value</u>	<u>Unit</u>	<u>Duty</u>	<u>Duty as per cent of</u>	
	<u>No. '000</u>	<u>\$'000</u>	<u>Value</u>	<u>Collected</u>	<u>Total</u>	<u>Dutiable</u>
			<u>\$</u>	<u>\$'000</u>	<u>Value</u>	<u>Value</u>
<u>1. Total</u>						
1959(a)	707	990	1.40	166	16.8	20.1
1960	732	1,498	2.05	237	15.8	20.1
1961	1,269	2,451	1.93	273	11.1	20.3
1962	2,069	3,156	1.53	438	13.9	24.0
1963	3,184	2,836	.89	388	13.7	21.9
<u>2. United Kingdom</u>						
1959(a)	*	1	3.14	*	0.5	15.1
1960	2	4	2.63	-	-	-
1961	29	36	1.23	1	2.6	19.2
1962	160	174	1.09	10	5.5	10.0
1963	58	60	1.04	1	1.8	7.5
<u>3. United States</u>						
1959(a)	536	859	1.60	140	16.3	20.1
1960	595	1,419	2.39	222	15.6	20.1
1961	1,007	2,333	2.32	256	11.0	20.3
1962	1,448	2,846	1.97	395	13.9	24.8
1963	2,066	2,519	1.22	333	13.2	22.2
<u>4. Netherlands</u>						
1959(a)	42	45	1.08	9	20.0	20.0
1960	68	39	.57	8	20.0	20.0
1961	229	79	.35	16	20.0	20.0
1962	429	124	.29	30	24.2	24.2
1963	753	194	.26	42	21.5	21.5
<u>5. Japan</u>						
1959(a)	129	84	.65	17	20.0	20.0
1960	67	35	.52	7	20.0	20.0
1961	4	3	.65	1	20.0	20.0
1962	30	9	.30	2	26.5	26.5
1963	286	53	.19	11	20.1	20.1

(a) Prior to 1959 imports under tariff item 445d included in s.c. 6166 (Table 11) and those under tariff item 445k in s.c. 6170, viz.:

"Electrical apparatus and complete parts n.o.p."



Table 15

Imports: Semiconductors except transistors, and parts of semiconductors, s.c. 6149

Tariff items 445d, 445k, 445v

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1960(a)	1,986	321	16.1	20.8
1961	2,230	392	17.6	20.6
1962	3,753	655	17.5	24.4
1963	3,444	492	14.3	22.8
<u>2. United Kingdom</u>				
1960(a)	46	3	7.6	15.0
1961	65	2	3.4	15.1
1962	74	5	6.4	13.8
1963	46	2	5.3	13.3
<u>3. United States</u>				
1960(a)	1,889	307	16.2	20.9
1961	2,032	363	17.9	20.7
1962	3,457	595	17.2	24.5
1963	3,156	438	13.9	23.0
<u>4. Germany(b)</u>				
1960(a)	13	3	20.4	20.4
1961	32	7	20.2	20.2
1962	27	6	22.8	22.9
1963	6	1	18.1	18.1
<u>5. Netherlands</u>				
1960(a)	36	7	20.0	20.0
1961	97	19	20.0	20.0
1962	172	45	25.9	25.9
1963	201	44	22.0	22.0
<u>6. Japan</u>				
1960(a)	1	*	20.0	20.0
1961	2	*	14.5	20.3
1962	15	4	22.9	23.0
1963	25	5	21.4	21.7

(a) Prior to 1960 imports under tariff item 445d included in s.c. 6166 (Table 11) and those under tariff item 445k in s.c. 6170, viz.: "Electrical apparatus and complete parts n.o.p."

(b) West Germany only.

Table 16

Imports: Transformers and complete parts n.o.p., s.c. 6165

Tariff item 445f

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1947	1,202	264	22.0	22.1
1948	1,364	277	20.3	20.6
1949	1,853	374	20.2	20.3
1950	2,125	440	20.7	20.8
1951	2,750	562	20.4	20.5
1952	4,046	804	19.9	20.0
1953	5,014	996	19.9	19.9
1954	5,709	1,172	20.5	20.6
1955	6,595	1,401	21.2	21.4
1956	10,144	2,124	20.9	21.1
1957	10,419	2,128	20.4	20.6
1958	8,099	1,678	20.7	20.9
1959	7,721	1,651	21.4	21.5
1960	8,088	1,728	21.4	21.5
1961	7,309	1,568	21.5	21.7
1962	8,187	1,831	22.4	24.3
1963	7,773	1,646	21.2	22.3

2. United Kingdom

1947	199	15	7.5	7.5
1948	325	48	14.7	14.7
1949	552	83	15.0	15.0
1950	493	74	15.0	15.0
1951	731	110	15.0	15.0
1952	1,318	197	14.9	15.0
1953	1,699	255	15.0	15.0
1954	1,428	214	15.0	15.0
1955	981	146	14.9	15.0
1956	1,935	283	14.6	15.0
1957	2,677	398	14.9	15.0
1958	1,756	263	15.0	15.0
1959	1,035	155	14.9	15.0
1960	1,043	156	15.0	15.0
1961	798	119	15.0	15.0
1962	667	109	16.3	17.6
1963	818	128	15.6	15.8

(Cont'd)

Table 16  
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>				
1947	956	237	24.8	25.1
1948	984	221	22.4	22.5
1949	1,261	282	22.3	22.5
1950	1,578	354	22.4	22.5
1951	1,975	443	22.4	22.5
1952	2,429	540	22.2	22.5
1953	3,219	720	22.4	22.5
1954	3,924	877	22.3	22.5
1955	4,927	1,101	22.3	22.5
1956	7,028	1,575	22.4	22.5
1957	6,964	1,555	22.3	22.5
1958	5,607	1,249	22.3	22.5
1959	5,927	1,325	22.4	22.5
1960	6,040	1,346	22.3	22.5
1961	5,981	1,331	22.3	22.5
1962	6,805	1,545	22.7	24.9
1963	6,064	1,319	21.8	23.2



Table 17

Imports: Articles used in the manufacture of apparatus using radio tubes, s.c. 6175

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Tariff items 4450(1), 4450(3), 4450(4)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>1. Total</u>				
1947	2,576	4	.1	30.0
1948	1,973	-	-	-
1949	2,894	-	-	-
1950	4,159	-	-	-
1951	4,054	-	-	-
1952	3,412	-	-	-
1953	10,890	-	-	-
1954	11,057	-	-	-
1955	8,902	-	-	-
1956	6,769	-	-	-
1957	6,095	-	-	-
1958	6,206	-	-	-
1959	6,010	-	-	-
1960	5,736	-	-	-
1961	4,987	*	*	8.0
1962	4,824	1	*	26.1
1963	5,040	*	*	19.5

2. United Kingdom

1947	6	-	-	-
1948	4	-	-	-
1949	8	-	-	-
1950	53	-	-	-
1951	116	-	-	-
1952	66	-	-	-
1953	189	-	-	-
1954	404	-	-	-
1955	713	-	-	-
1956	1,224	-	-	-
1957	1,858	-	-	-
1958	1,956	-	-	-
1959	2,042	-	-	-
1960	2,170	-	-	-
1961	1,025	-	-	-
1962	259	*	*	9.9
1963	179	-	-	-

(Cont'd)

Table 17  
(Cont'd)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u>	
			<u>Total</u> <u>Value</u>	<u>Dutiable</u> <u>Value</u>
<u>3. United States</u>				
1947	2,562	4	.1	30.0
1948	1,969	-	-	-
1949	2,886	-	-	-
1950	4,101	-	-	-
1951	3,845	-	-	-
1952	3,168	-	-	-
1953	10,508	-	-	-
1954	10,444	-	-	-
1955	7,807	-	-	-
1956	5,141	-	-	-
1957	3,715	-	-	-
1958	3,838	-	-	-
1959	3,585	-	-	-
1960	3,313	-	-	-
1961	3,649	*	*	8.1
1962	4,308	1	*	26.1
1963	4,475	*	*	30.0
<u>4. Germany</u> (a)				
1947-49	-	-	-	-
1950	1	-	-	-
1951	1	-	-	-
1952	3	-	-	-
1953	6	-	-	-
1954	12	-	-	-
1955	73	-	-	-
1956	48	-	-	-
1957	88	-	-	-
1958	108	-	-	-
1959	104	-	-	-
1960	115	-	-	-
1961	195	*	*	7.5
1962	127	-	-	-
1963	276	*	*	7.8

(Cont'd)

Table 17  
(Concluded)

<u>Year</u>	<u>Value</u> \$'000	<u>Duty</u> <u>Collected</u> \$'000	<u>Duty as per cent of</u> <u>Total</u> <u>Dutiable</u> <u>Value</u> <u>Value</u>	
<u>5. Netherlands</u>				
1947-48	-	-	-	-
1949	*	-	-	-
1950	5	-	-	-
1951	92	-	-	-
1952	161	-	-	-
1953	183	-	-	-
1954	197	-	-	-
1955	215	-	-	-
1956	344	-	-	-
1957	423	-	-	-
1958	273	-	-	-
1959	259	-	-	-
1960	119	-	-	-
1961	77	-	-	-
1962	43	-	-	-
1963	29	-	-	-
<u>6. Japan</u>				
1947-55	-	-	-	-
1956	2	-	-	-
1957	*	-	-	-
1958	2	-	-	-
1959	7	-	-	-
1960	4	-	-	-
1961	7	-	-	-
1962	20	-	-	-
1963	21	-	-	-

(a) Beginning in 1952 West Germany only.





APPENDIX DEXPORT STATISTICS

<u>Table</u>	<u>Description</u>	<u>Statistical Class No.</u>
1	Radio and television receiving sets, 1947 to 1961	630-35
2	Radio and wireless apparatus n.o.p. (except batteries), 1947 to 1960	6460
3	Phonographs and gramophones and parts, 1947 to 1960	9310
4	Transformers and parts, 1947 to 1963	680-39
5	Radio receiving sets, 1962 and 1963	630-36
	Television receiving sets, 1962 and 1963	630-37
	Phonographs, record players and specific parts, 1961 to 1963	630-60
	Radio and television equipment and related devices and specific parts n.e.s., 1961 to 1963	630-39
	Radar equipment and related devices and specific parts, 1961 to 1963	630-49
	Sound recording and reproducing equipment and specific parts n.e.s., 1961 to 1963	630-69
	Electronic tubes, semiconductors and parts, 1961 to 1963	630-59
	Communication and related equipment components, 1961 to 1963	630-99

Source: DBS Cat. No. 65-202 and 65-004.

Table 1

Exports: Radio and television receiving sets, s.c. 630-35<sup>(a)</sup>

<u>Year</u>	<u>D O M E S T I C</u>			<u>R E - E X P O R T S</u>		
	<u>Quantity</u>	<u>Value</u>	<u>Unit Value</u>	<u>Quantity</u>	<u>Value</u>	<u>Unit Value</u>
	No.	\$'000	\$	No.	\$'000	\$
1947	52,643	1,605	30.49	1,921	43	22.41
1948	27,815	893	32.12	162	10	62.77
1949	33,334	1,427	42.81	74	3	36.41
1950	36,837	1,256	34.09	36	8	235.36
1951	35,576	1,200	33.74	245	18	75.51
1952	34,131	1,454	42.61	177	13	74.99
1953	23,329	994	42.62	207	16	78.54
1954	16,049	1,516	94.49	100	10	99.05
1955	10,164	955	93.99	513	28	53.97
1956	5,662	541	95.61	369	25	68.54
1957	5,817	461	79.28	1,009	34	33.49
1958	643	205	318.92	1,945	112	57.72
1959	17,402	907	52.14	2,190	116	52.88
1960	4,136	430	104.02	12,254	227	18.55
1961 <sup>(a)</sup>	7,642	1,404	183.77	51,696	428	8.27

<sup>(a)</sup> s.c. 6450 prior to 1961. Beginning in 1962 sub-divided into s.c. 630-36 and 630-37 (Table 5).



Table 2

Exports: Radio and wireless apparatus n.o.p. (except batteries), s.c.  
6460

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<u>Year</u>	<u>Domestic</u> \$'000	<u>Re-Exports</u> \$'000
1947	1,146	286
1948	1,541	251
1949	1,539	225
1950	2,133	424
1951	2,253	509
1952	12,838	507
1953	22,927	1,316
1954	6,833	1,268
1955	4,803	1,310
1956	6,081	1,554
1957	4,528	1,495
1958	5,969	3,915
1959	8,974	2,005
1960(a)	21,998	2,372

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(a) Beginning in 1961 sub-divided into s.c. 630-39, 630-49, 630-59, 630-69, 630-99 (Table 5).

Table 3Exports: Phonographs and gramophones and parts, s.c. 9310

<u>Year</u>	<u>Domestic</u> \$'000	<u>Re-Exports</u> \$'000
1947	265	67
1948	83	38
1949	55	27
1950	51	13
1951	29	26
1952	56	22
1953	31	91
1954	31	57
1955	62	95
1956	79	140
1957	216	122
1958	79	259
1959	69	159
1960(a)	258	190

(a) Beginning in 1961 included in s.c. 630-60  
(Table 5).

Table 4Exports: Transformers and parts, s.c. 68-039(a)

<u>Year</u>	<u>Exports</u> \$'000	<u>Re-Exports</u> \$'000
1947	528	25
1948	389	24
1949	976	119
1950	385	23
1951	2,399	17
1952	4,294	28
1953	718	59
1954	1,194	64
1955	1,625	87
1956	669	292
1957	1,836	88
1958	2,610	80
1959	2,863	127
1960	1,749	225
1961	4,682	123
1962	5,596	217
1963	6,827	130

(a) s.c. 6475 prior to 1962.



Table 5

Exports: 1961 to 1963

<u>Description</u>	<u>Year</u>	<u>DOMESTIC</u>			<u>RE-EXPORTS</u>		
		<u>Quan- tity No.</u>	<u>Total Value \$'000</u>	<u>Unit Value \$</u>	<u>Quan- tity No.</u>	<u>Total Value \$'000</u>	<u>Unit Value \$</u>
Radio receiving sets, s.c. 630-36 <sup>(b)</sup>	1961	(a)	(a)	(a)	(a)	(a)	(a)
	1962	15,525	2,975	191.65	10,494	195	18.62
	1963	25,863	4,988	192.87	8,135	121	14.90
Television receiving sets, s.c. 630-37 <sup>(c)</sup>	1961	(a)	(a)	(a)	(a)	(a)	(a)
	1962	1,524	309	203.02	12	2	186.50
	1963	6,946	1,275	183.61	121	24	197.36
Phonographs, record players and speci- fic parts, s.c. 630-60	1961	432	61	141.09	1,681	54	31.92
	1962	575	125	216.80	80	31	385.06
	1963	165	75	457.30	104	25	239.58
Radio and television equipment and rela- ted devices and spe- cific parts n.e.s., s.c. 630-39 <sup>(d)</sup>	1961	..	6,249	..	..	1,200	..
	1962	..	14,649	..	..	1,312	..
	1963	..	14,561	..	..	1,844	..
Radar equipment and related devices and specific parts, s.c. 630-49	1961	..	14,418	..	..	706	..
	1962	..	21,240	..	..	1,143	..
	1963	..	15,866	..	..	769	..
Sound recording and reproducing equip- ment and specific parts n.e.s., s.c. 630-69 <sup>(e)</sup>	1961	..	553	..	..	314	..
	1962	..	494	..	..	392	..
	1963	..	726	..	..	423	..
Electronic tubes, se- miconductors and parts, s.c. 630-59	1961	..	3,619	..	..	1,230	..
	1962	..	2,243	..	..	1,062	..
	1963	..	2,080	..	..	1,902	..
Communication and re- lated equipment com- ponents, s.c. 630-99	1961	..	4,763	..	..	846	..
	1962	..	1,181	..	..	711	..
	1963	..	3,787	..	..	694	..

(a) In 1961 included in s.c. 630-35 (Table 1).

(b) Includes radio-phonograph combinations.

(c) Includes TV-radio, TV-phonograph and TV-radio-phonograph combinations.

(d) Includes duplexers and radio-telephone equipment not under review in Reference 123.

(e) Includes phonograph records and other products not under review in Reference 123.







AI FN 55  
-57R231



CANADA



Report by

# THE TARIFF BOARD

Relative to the Investigation Ordered  
by the Minister of Finance  
respecting

**AUTOMATIC RECORD CHANGERS**

**Reference No. 123 (part)**





CANADA

Report by  
**THE TARIFF BOARD**

Relative to the Investigation Ordered  
by the Minister of Finance  
respecting

**AUTOMATIC RECORD CHANGERS**

***Reference No. 123 (part)***



QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1959

Cat. No. FT4—123/1

## THE TARIFF BOARD

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L.C. Audette, Q.C.	Chairman
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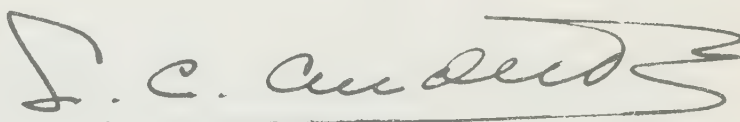
The Honourable Donald M. Fleming, P.C., Q.C., M.P.  
Minister of Finance  
OTTAWA, Ontario

Dear Mr. Fleming:

I refer to your letter of March 24, 1959, in which you requested the Tariff Board to conduct an inquiry respecting automatic record changers.

In conformity with Section 6 of the Tariff Board Act, I have the honour to transmit the Report of the Board relating to automatic record changers, in English and in French. A copy of the transcript of the proceedings at the public hearings accompanies this Report.

Yours sincerely

A handwritten signature in dark ink, appearing to read "D. C. Anderson", with a long, sweeping horizontal line extending from the end of the signature.

Chairman



## THE TARIFF BOARD

---

Reference No. 123 (part)

### An Inquiry Respecting Automatic Record Changers

---

A letter from the Minister of Finance, dated March 24, 1959, requested the Tariff Board to conduct an inquiry respecting automatic record changers. The text of this letter is as follows:

"The Minister of Finance in a letter dated February 13, 1957, directed the Tariff Board to make a study and report on certain tariff items covering the products of the radio, television and electronics industry.

I understand there has been some discussion of this reference with members of the industry but as yet no specific proposals have been put forward by that industry to the Tariff Board.

Automatic record changers are enumerated in tariff item 4450(i) and I have now received representations urging that the Board be instructed to proceed with its hearings on automatic record changers at the earliest opportunity notwithstanding the fact that it might not be possible at the same time to proceed with the hearings on the other products covered in the tariff items in the original reference. On considering this matter, it occurs to me that, while automatic record changers may be installed in units together with radios, television sets or record players, they do not form parts of these units in the same sense that most of the other parts named in tariff items 4450, 445p, 445q and 445s do. In these circumstances, it would seem unnecessary to hold up the hearing on automatic record changers pending receipt of the industry's proposals with respect to the other articles named in these tariff items. I would, therefore, request that the Board proceed to deal with the automatic record changers at the earliest opportunity and report separately on this item."



Tariff Item: At present, tariff item 4450(i) is as follows:

4450(i) Acid-free capacitor tissue and paper, plain and gummed; metal cans, extruded, plated or unplated; automatic record changers; parts for pickups; bias cells and holders; frames, yokes, brackets, pole-pieces, gaskets and field covers, separate or assembled for use in speakers with mounting diameter not exceeding 6 3/8 inches; cones, spiders, spider suspensions, voice coils and voice coil dust covers, separate or assembled; magnetic structures and parts thereof for permanent magnet speakers; glass dial crystals and scales and metal dials or scales made by the silk-screen process; metal cabinet escutcheons without crystals, plain or finished; high frequency circuit switches and essential components thereof; high frequency iron cores with or without inserts moulded therein; motors and gears for automatic tuning; radio frequency ceramics; raw low loss mica; sheets and punchings of low loss mica; tube shields and parts thereof; vibrators; vulcanized fibre in sheets, rods, strips or tubing; high frequency coil forms and tubing having an outside diameter not exceeding one inch; for use in the manufacture or the repair of the goods enumerated in tariff items 445d, 597a, and other apparatus using radio tubes, or for use in the manufacture of parts therefor

<u>British Preferential</u>	<u>Most-Favoured-Nation</u>	<u>General</u>
Free	Free	30 p.c.

Proposal: Audio Tool and Engineering, Limited, Toronto, proposed that provision for automatic record changers be deleted from item 4450(i). The Board understands that, as a result of this proposal, both automatic record changers and finished parts thereof would be dutiable under item 597a(2):

597a(2) Phonographs, graphophones, gramophones and finished parts thereof, n.o.p., including cylinders and records therefor

<u>British Preferential</u>	<u>Most-Favoured-Nation</u>	<u>General</u>
15 p.c.	20 p.c.	30 p.c.

Public Hearing: A public hearing before the Board respecting this reference was held at Ottawa on June 29 and 30, 1959. The following is a list of the companies and other interested parties which were represented at the hearing or which submitted written representations:

### Appearances:

Audio Tool and Engineering, Limited, Toronto  
Canadian Importers and Traders Association, Toronto  
Canadian Westinghouse Company, Limited, Toronto  
Department of National Revenue, Ottawa  
Electronic Enterprises Limited, Montreal  
Electronic Industries Association, Toronto  
General Steel Wares, Limited, Toronto  
Musimart of Canada, Limited, Montreal  
Netherlands Embassy, Ottawa  
Northern Electric Company, Limited, Montreal  
Philips Electronics Industries, Limited, Toronto  
Plessey Company of Canada, Limited, Montreal  
RCA Victor Company Limited, Montreal  
A.C. Simmonds and Sons Limited, Toronto  
United Kingdom Trade Commissioner, Ottawa  
V.M. Corporation, Benton Harbour, Michigan

### Representations by mail:

Birmingham Sound Reproducers, Limited, Old Hill, Staffs, England  
Canadian Admiral Corporation, Limited, Port Credit, Ont.  
Canadian Astatic Limited, Toronto  
Canadian Electrical Manufacturers Association, Toronto  
Canadian Marconi Company, Montreal  
Collaro Limited, Barking, Sussex, England  
Dominion Electrohome Industries Limited, Kitchener  
Electric Products Manufacturing Company Limited, Montreal  
Emanuel Products Limited, Toronto  
The Garrard Engineering and Manufacturing Company Limited, Swindon, Wilts, England  
The Middlesex Furniture Company Limited, Strathroy, Ont.  
The National Table Company, Limited, Owen Sound  
Record Player Corporation, Montreal  
Sparton of Canada, Limited, Montreal  
Strathroy Cabinets Limited, Strathroy, Ont.

Automatic Record Changers: Since the introduction of recorded music many new forms of entertainment have appeared, including programmes received through radio and television sets. In part all three have been competing attractions, in part complementary. Whatever the relationship, producers of record changers and record players have kept pace with advances in recording, have developed more effective methods of production, and have improved the quality of their products.

A record player of any kind requires over and above sound reproducing equipment, among other things, a turn-table, a motor and a pickup mechanism. Records may be changed manually or automatically. In recent years, most of the combination sets and perhaps half of the



players sold separately have been equipped with automatic changers. This report deals only with automatic record changers.

An automatic record changer is a device which enables a phonograph to play records in succession automatically. In the course of time and to keep pace with the changing characteristics of records, many different features have been incorporated into automatic record changers. Today most automatic record changers are capable of (1) playing up to twelve records, (2) playing three different sizes of records, 7", 10" and 12", (3) playing at three different speeds, 33 1/3, 45 and 78 r.p.m.; some of the newer models are also equipped to play at 16 2/3 r.p.m., (4) shutting off the machine after the last record has been played, (5) being used as a manual player, and (6) rejecting a record which has been only partially played.

With respect to tariff classification the Board is informed that:

- 1) Automatic record changers are classified under tariff item 4450(i) which carries rates of Free under the British Preferential Tariff and Most-Favoured-Nation Tariff, and 30 p.c. under the General Tariff.
- 2) Automatic record changers when mounted on a base or in a separate case are classified under tariff item 597a(2) as "finished parts of gramophones" and are dutiable at 15 p.c. under the British Preferential Tariff, 20 p.c. under the Most-Favoured-Nation Tariff and 30 p.c. under the General Tariff.
- 3) Automatic record changers installed in the same cabinet or case with a radio, television set, tape recorder or various combinations of these are classified under different tariff items depending upon the nature of the combination. For the most part they would be dutiable at 15 p.c. under the British Preferential Tariff, 20 p.c. under the Most-Favoured-Nation Tariff and 30 p.c. under the General Tariff.
- 4) Record players, whether or not equipped with an automatic record changer, are classified under tariff item 597a(2) which carries rates of 15 p.c. under the British Preferential Tariff, 20 p.c. under the Most-Favoured-Nation Tariff and 30 p.c. under the General Tariff.

Canadian Producers: Automatic record changers were produced in Canada by Audio Tool and Engineering Limited of Toronto, from 1947 until May, 1958, for sale to two markets (a) an affiliated company, Seabreeze Manufacturing Limited, Toronto, and (b) to other buyers of changers, such as record player manufacturers. Seabreeze Manufacturing Limited produces a line of finished electrical products, including record players. According to its submission to the Board, Audio Tool and



Engineering Limited "... was forced to discontinue manufacturing<sup>(1)</sup> because its industrial market was lost; since May, 1958, changers have been made in Canada by Seabreeze using tooling and manufacturing facilities leased from Audio".

Although Seabreeze Manufacturing Limited is now the sole domestic manufacturer of automatic record changers, the submission to the Board requesting the imposition of a duty was made by Audio Tool and Engineering Limited. These two firms are closely affiliated; they occupy the same plant and have personnel in common.

In the following text, Audio Tool and Engineering Limited is referred to as "Audio", Seabreeze Manufacturing Limited is referred to as "Seabreeze" and automatic record changers are designated simply as "changers".

#### Producer's Arguments in Support of Proposal:

In its submission to the Board, Audio proposed that

"... the enumeration 'automatic record changers' be deleted from tariff item 4450(i). If this statutory change were made, automatic record changers would then be classified under tariff item 597a(2); the latter classification is, we submit, the appropriate one as automatic record changers are in fact finished parts of phonographs."

Thus, Audio advocates the removal of changers from item 4450(i) — free B.P. and M.F.N. and 30 p.c. General, with the result that changers and finished parts would be classified under item 597a(2) — 15 p.c. B.P., 20 p.c. M.F.N. and 30 p.c. General.

In support of this proposal, Audio's submission states:

"Tariff item 4450(i) was created following a Tariff Board inquiry into the radio-phonograph industry in 1937-38. The basis for the present duty-free entry of the goods presently listed in 4450(i) was that the articles and materials named in the item were not produced in Canada at that time.

"We think this historical background is of some significance in the present reference. If automatic record changers had been made in Canada in 1937-38, it is reasonable, we believe, to assume that they would not have been included on a duty-free list. Parliament has supported this assumption by maintaining a provision for other finished parts of phonographs under Tariff Item 597a(2).

"In Audio's view developments in the electronics industry during the past two decades warrant a re-examination of Tariff Item 4450(i) in light of (a) the historical basis

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(1) Audio stopped producing automatic record changers in May, 1958

on which it was drafted and (b) the marked change in conditions existing in 1939 on which the item was based. Now that automatic record changers are available in Canada in acceptable quality and quantity we believe the original basis governing their inclusion in 4450(i) no longer exists, and that changers should be consistently classified with other phonograph components under 597a(2)."

The submission goes on to urge that item 4450(i) was intended as a "manufacturer's item"; that is, it was intended to provide duty-free entry of certain materials and parts for further processing or manufacture in Canada. In the opinion of Audio, changers are complete entities; that is, they are finished products.

With respect to item 4450, the Second Report of the Tariff Board, dated June 20, 1940, concerning Reference No. 104 (The Radio Industry) reads in part:

"Tariff Item 4450, providing for the free entry of certain parts and materials used in the manufacture of receiving sets and of a class or kind not made in Canada ..."

The Board's Report notes, however, that there were exceptions to this rule since certain parts for radio speakers, which were being made in Canada at that time, were classified under this item. The plea to have certain of these parts transferred from item 4450 was not accepted on the ground that domestic production was too limited to meet the requirements of Canadian radio manufacturers.

Canadian Market: There are no published statistics of the market for changers. The Board has, therefore, prepared its own estimates by three different methods, a) using trade statistics, b) using Canadian production of record players, and c) using the number of changers purchased by record player manufacturers.

The Board has come to the conclusion that domestic consumption of changers exceeded 200,000 annually in each of the years 1957 and 1958. This conclusion is based on the following considerations:

a) When domestic production of changers<sup>(1)</sup> in 1957 and 1958 is added to imports, the totals exceed 200,000 in each year.

b) Domestic production of players indicates that player manufacturers used more than 200,000 changers both in 1957 and in 1958.

c) If purchases reported by player manufacturers were augmented by the changers used for repairs and in home-kits, the total would almost certainly be in the neighbourhood of 200,000.

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(1) Since there is only one producer, these figures are not stated in this Report, although they have been made available to the Board.

Estimated Number of Changers Used by Player Manufacturers (1)

		<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>
a) Apparent imports (2)							182,036	196,217
b) Estimated on basis of record player production (3)								
Combinations	No.	83,123	106,094	48,187	41,195	62,374	75,350	82,553 (4)
Record Players with Auto. Changers	No.	37,967	37,741	57,775	62,102	94,337	141,746	128,864 (4)
Total		121,095	143,835	105,962	103,297	156,711	217,096	211,417 (4)
c) Numbers reported acquired by player manufacturers (5)		n.a.	n.a.	n.a.	100,592	160,118	191,884	182,722

(1) Changers used in the repair trade and in home-kits are not included in these estimates.

(2) Apparent imports have been arrived at by combining official United Kingdom export statistics of changers to Canada with imports from other sources as reported by Canadian record player manufacturers.

(3) On the advice of Audio and representatives of record player manufacturers, the Board has assumed that all combination sets and half of other record players manufactured in Canada have changers.

(4) Preliminary.

(5) The number and value of changers imported or purchased from domestic changer manufacturers was reported to the Board by Canadian producers of record players.



The foregoing table indicates that since 1955 production of record players has increased appreciably. In 1957 and 1958, for example, more than twice as many players were produced as in 1955. This increase is attributable to the greater popularity of long-playing recordings and, in recent years, to the development of stereophonic equipment. The number of changers used has increased faster than the production of record players because the trend has been from manual to automatic changing.

Imports: From the statistics available to the Board, the number of changers imported has increased in each year since 1954. In 1958, it appears that manufacturers of record players imported almost all of their changer requirements, Seabreeze being an exception.

The United Kingdom supplied about 90 p.c. of the changers imported in 1958; other suppliers were the Netherlands, the United States and Sweden.

Domestic Output: As mentioned previously, Audio produced changers for sale to two markets, (a) to Seabreeze, and (b) to other buyers. The left-hand column below shows Audio's sales to buyers other than Seabreeze, while the right-hand column shows the estimated total number of changers used by player manufacturers, including Seabreeze.

<u>Year</u>	<u>Audio's Sales<sup>(1)</sup></u>	<u>Estimated Number of Changers Used by Player Manufacturers<sup>(2)</sup></u>
1958	Nil	211,417
1957	1,600	217,096
1956	8,200	156,711
1955	8,000	103,297
1954	16,700	105,962
1953	76,800	143,853
1952	16,800	121,095
1951	18,000	132,477

(1) Excluding sales to Seabreeze

(2) Including Seabreeze

The above table shows that Audio's sales, excluding those to Seabreeze, quadrupled in 1953 to reach a peak of 76,800 units. It would appear that in that year Audio supplied more than half of the total changer needs of the player manufacturers. In subsequent years Audio's sales have fallen off sharply; in 1958, in fact, there were no sales to non-affiliated firms. Initially the decline in Audio's sales was apparently due to two factors, (a) a sharp cut-back in record player output in 1954, and (b) the fact that in July, 1953, duties ceased to be applied to the motors incorporated into record changers. Prior to July, 1953, motors forming a component part of changers were subject to duty, even though the rest of the changer was duty-free. The representative of Audio informed the Board that,

as a result, his firm "... lost whatever protection we had at that time, which amounted to 75 or 85 cents per unit". Imports of changers also declined from the levels of 1953. After 1954, however, Audio's output for sale continued to decline while imports rose substantially. Because of this expansion in imports, Audio held a major share of the market for changers in 1953 only.

Until 1959, changers suitable only for monaural reproduction were made in Canada. A spokesman for Audio informed the Board, however, that an advanced 4-pole, 4-coil motor had been designed by his firm especially for stereophonic reproduction. He said that following this development production of changers for stereophonic reproduction began in Canada in May of 1959.

Variety: Audio claimed that since all changers are basically the same, it would be in a position to supply a changer which could be used satisfactorily by all player manufacturers in Canada. The changers could be made available in a number of style variations, consisting of differences in control knobs, tone arms and finishes. Such style variations would be applied to one basic design of changer, the motor and the works assembly<sup>(1)</sup> remaining unchanged.

Representatives of record player manufacturers contended that there are differences not only in styling but also in design as between one model and another. They exhibited a number of different makes of changers, including the Collaro, the BSR UA 8 and UA 12, the Garrard, the Philips, certain of those manufactured by the V.M. Corporation of Benton Harbour, Michigan, and in addition, the new changer being made by Seabreeze. The Board examined these changers and noted that there are substantial differences in design. For example, the mechanism of the Garrard has little resemblance to that of the other changers examined. The two BSR models had a number of mechanical differences; an engineer representing Canadian agents for BSR said that the UA 12 is a more advanced model of the BSR UA 8. According to this spokesman, it is common practice for a firm to bring out a more advanced changer every few years and to drop older models. Thus, BSR have two models on the market at present and have dropped their older BSR UA 6. That this practice is common was confirmed by the representative of the V.M. Corporation, who stated that his firm has three models on the market; these models were produced at various times and each incorporated the new design features available when it was brought out. The BSR representative indicated the degree of difference between the two BSR models by stating that more than 80 p.c. of the tooling used to produce the UA 12 differed from that used to produce the UA 8.

Since tooling is a major element in the cost of producing changers, a spokesman for the player manufacturers said, "we believe that it is not economically feasible for a Canadian manufacturer to tool up to produce the variety of automatic changers required by the industry". Audio agreed that the duplication of tooling costs would

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(1) The works assembly is the mechanism which changes the records.



make it impracticable to produce more than one design of changer for the limited Canadian market.

Representatives of the player manufacturers informed the Board that the differences in both style and design are important to them from several points of view. The spokesman for one large Canadian player manufacturer said that his firm purchased changers of different designs; an elaborate and costly changer is purchased for the higher priced players or combination sets made by this firm, a less costly and less elaborate changer is used in the firm's other models. It was stated that satisfactory results, both from a technical and sales point of view, could not be obtained by using the low-priced changer in a high-priced player. On the other hand, it would be too expensive to use a high-priced changer in a low-priced player.

Most player manufacturers attached a great deal of sales value to the design and style of the particular changers they used. They stated that any features which are unique to their changers form an important part of their sales promotion. If only one changer were available, they felt this advantage would be lost.

Costs: Audio informed the Board that foreign competitors

"... enjoy all the traditional low-cost advantages of volume production ... It should be noted that stamping and moulding operations are important in the production of changers; components which are die-stamped or moulded comprise approximately 90% of the total material content. This necessarily results in a very heavy investment in tooling which must be amortized over production ...."

The Audio statement goes on to say

"The European manufacturers have two additional advantages (1) lower labour rates, which we understand are less than one-half those paid to Audio employees and (2) less expensive materials, particularly steel and copper ...."

In illustrating the economies of larger output, the spokesman for Audio said that if his firm could sell from 100,000 to 125,000 changers per year, that is to say half of the market, he believed that costs per unit of output would be reduced substantially. In support of this contention, he submitted estimates of his costs at three levels of output: 50,000, 75,000 and 100,000 changers per year. Since this information was given in confidence, details cannot be disclosed.

On the basis of these estimates, factory costs would be reduced by about 10 p.c. if output were increased from 50,000 to 100,000 units. At the hearings the spokesman for Audio estimated that with a production of 100,000 units and a duty of 20 p.c., M.F.N., Audio's price would be 7 p.c. under the landed duty-paid price of the V.M. changer from the United States.



In other information submitted to the Board, Audio estimated that, at a production of 100,000 units per year, it could compete on equal or better terms with imports from the United States under duty-free entry. This estimate is based on the statement that die and tooling costs are most economically amortized when production is at about that level.

No information is available to the Board respecting European costs. A representative of the V.M. Corporation of Benton Harbour, Michigan, stated that changers made in Europe were being imported in increasing quantities into the United States over a 15 p.c. rate of duty. Thus, it would appear that prices of European changers are at least 15 p.c. below prices in the United States.

Prices: The Board obtained, in confidence, prices at which changers are imported into Canada. This information shows that the major portion of these changers are currently purchased at prices below the level at which Audio estimates it could sell, based on an output of 100,000 changers per year. The imported models which sell in greatest volume are priced appreciably below Audio's estimated price. Because the larger part of the market is at the lower end of the price scale, the domestic producer would need to supply a major share of the market currently held by these low-priced changers. The importance of the price factor in this market is indicated by Audio's statements "... that the industry [domestic record player manufacturers] chose to buy foreign-made changers, for reasons of price alone, notwithstanding strenuous 'Buy Canadian' campaigns ...".

It would appear that the application of a British Preferential duty of 15 p.c. would raise the landed cost of the greater portion of imported changers to levels at least equal to Audio's estimated price. For the higher priced imports in particular, the application of such a duty would increase prices appreciably; the prices of such imported changers are currently well above the estimated price of the domestic product.

The application of a lower duty, for example  $7\frac{1}{2}$  p.c., would tend to leave a sizeable price differential in favour of a fairly small proportion of imported changers. A substantial proportion of imports would probably land at a cost somewhat less than the price proposed by the domestic manufacturer.

The Canadian producer believed that it would be possible for him to overcome a moderate differential in price in favour of the British producers. He said that it would be possible for his firm to give steady delivery and prompt servicing generally. He believed that these and other advantages of being close to his customers would offset any moderate difference in price.

Effect of Proposal on Player Manufacturers: Changers account for more than 50 p.c. of the cost of certain of the popular lowest priced record players. For medium priced record players, the

changers constitute from 10 to 25 p.c. of manufacturing cost. In the most costly combination set brought to the attention of the Board, the changer made up 7 p.c. of the manufacturing cost. If the proposed 15 p.c. B.P. duty were applied, the cost of the lowest priced players would increase by about 10 p.c., that of the more expensive players by something less than 5 p.c. and that of the combination set by 1.2 p.c.

The duty under tariff item 597a(2) of 15 p.c. B.P. on record players gives domestic player manufacturers the following levels of protection, based on factory costs of selected players, minus the cost of the changer.

Low-priced player	- 30 p.c.
Medium-priced player	- 19 p.c.
Combination set	- 16 p.c.

The 20 p.c. M.F.N. duty under item 597a(2) gives somewhat higher protection.

To the extent that parts for record players may be dutiable, the effective protection to player manufacturers is less than that shown above.

If a duty of 15 p.c. were applied to changers, the protection to player manufacturers, under the British Preferential Tariff, expressed as a percentage of the value of the players minus the changers, would be reduced to 15 p.c. in each case.

Even at existing levels of protection, at least one of the larger record player producers suffered financial losses in 1958. Some other manufacturers indicated that profit margins are small and said that they would not be able to absorb the additional cost resulting from a 15 p.c. duty but would have to increase their prices. Although imports of lower priced players are small at present, domestic manufacturers feared that price increases, of up to 10 p.c., would encourage imports of players. Imports of combination sets, in fact, have increased substantially in the last year or two. While the increase in the price of domestic combination sets would not be large, the manufacturers said that it would encourage a further expansion of imports. Since the Canadian content of a combination set, including labour, is relatively great — much greater than that in a changer — an increase in imports of combination sets resulting from the application of a 15 p.c. duty would offset the effects of a considerable expansion in the Canadian production of changers.

Submissions Presented by Other Interested Parties: The Canadian Electrical Manufacturers Association presented a submission to the Board in which it was suggested that

"... it would be in all respects beneficial to Canada if this young automatic record changer industry were afforded some reasonable tariff protection, consistent with that already provided by parliament to other Canadian manufacturers."



Canadian Astatics Limited informed the Board it manufactures cartridges for changers. In supporting Audio's request for protection, Canadian Astatics said

"Since automatic record changers are now made in Canada the manufacturers of this product are entitled to the same tariff protection as already granted to other Canadian electronics manufacturers."

Audio's request for tariff protection was opposed by four Canadian manufacturers of phonograph cabinets: Emanuel Products Limited, the Middlesex Furniture Company Limited, the National Table Company Limited, and Strathroy Cabinets Limited. They informed the Board that, in their opinion, the imposition of a duty on changers would increase the production costs of Canadian-made phonographs to levels which would encourage further imports of finished players, thus reducing the demand for cabinets used in the manufacture of Canadian-made phonographs and combination sets.

A representative of the Canadian Importers and Traders Association Incorporated stated that in the opinion of the members of the Association any benefits derived from a duty on changers would be small. He also pointed out that if a duty were applied against imported changers the costs of the domestic player manufacturers would be increased.

Summary: Automatic record changers have been manufactured in Canada since 1947 by Audio Tool and Engineering, Limited, Toronto, or by Seabreeze Manufacturing Limited, an affiliate of Audio. In part, these changers have been used in the Seabreeze line of record players; in part they have been sold to other player producers in Canada.

The other producers of record players who are, generally speaking, direct competitors of Seabreeze, have purchased from Audio a varying proportion of their changers. In the peak year, 1953, Audio supplied more than half the Canadian market; in the years 1951, 1952 and 1954, Audio's sales to all producers, though much smaller, were nevertheless substantial; since 1954 they have diminished, while imports have been increasing.

Meanwhile, Audio's position as a producer of changers has been affected by several events. Of these the first, in point of time, was the abolition of the temporary controls over imports from which, presumably, Audio had benefitted during its earlier years. A second resulted from a decision of the Tariff Board in 1953. In that year the Board declared on an appeal brought before it by the Deputy Minister of National Revenue that certain machines in which electric motors were incorporated were properly dutiable as entities under the provisions of the Customs Tariff. Thereafter the motors imported in changers were admitted free of duty whereas formerly they had been dutiable under tariff item 445g at 15 p.c. under the British Preferential Tariff and 22½ p.c. under the Most-Favoured-Nation Tariff; the duty is said to have amounted to some 75 or 85



cents per changer. In addition, a decline in general business conditions and the growing popularity of television affected Audio in 1954 and 1955.

Finally, the expansion of stereophonic reproduction especially in 1958 and 1959 affected Audio in a way that requires some explanation. The motor used in Audio's changers had been used also in the Seabreeze line of electric fans. By combining the production of fans and of players — both highly seasonal — Audio had been able to utilize more completely its equipment for making electric motors and also to decrease the seasonal fluctuations in its overall production. However, the motor which had been used in the fans and in the changers was not suitable for use in stereophonic reproduction, and Audio found it necessary to design a new motor specially for that use. At the same time Audio was preparing to move from its present scattered premises to a new and modern factory building. In 1958 Audio's sales to non-affiliated player producers fell to zero and even Seabreeze imported its stereophonic changers. Production in Canada of the new motors and of changers suitable for stereophonic players was begun in May, 1959.

Audio has proposed that the words "automatic record changers" be stricken from tariff item 4450(i) which permits free importation under the British Preferential Tariff and Most-Favoured-Nation Tariff. If this proposal were adopted, the changers would become dutiable under tariff item 597a(2) at rates of 15 p.c. under the British Preferential, 20 p.c. under the Most-Favoured-Nation and 30 p.c. under the General Tariff. In addition, imported materials and parts of record changers would no longer enter free of duty under tariff item 4450(iii); instead, imports of finished parts of changers as well as the changers themselves would enter under item 597a(2).

Since Audio imports a not inconsiderable proportion of the parts and materials it uses in its changers, the net protection that would result from its proposal would be considerably less than the new rates on changers.

At the hearings, Audio's proposal was opposed by a number of Canadian producers of record players. It was opposed as well by others, including a number of cabinetmakers, who made their submissions by letter. The producers of players listed several disadvantages that might result from their being dependent for changers on a single company which competes with them in the production of players directly or through an affiliated company. These disadvantages might be especially important with respect to such a highly seasonal product as players — the sales of which are concentrated in the last two or three months of the year. They declared also that, not being in a position to absorb the duty on changers, they would be forced to attempt to pass it on by increasing the price of players even though in the marketing of their higher priced models — particularly their combination sets — they were already experiencing competition from imports. They emphasized, too, the selling advantages to be derived from being able to offer a model equipped with a special changer or a line of players featuring a variety of changers.

As to the advantages of variety, it appears that the differences between the changers now being imported are of two different kinds. In part they arise from superficial differences in knobs, colours and finishes; in part from more fundamental mechanical differences. The more superficial differences in style could be offered by the Canadian producer without greatly increasing its cost but it is not to be expected that it would be able to offer models that required substantially different tools.

After considering the discussion at the hearing on the importance of these various differences, the Board is of the opinion that, given a satisfactory basic design, much of the need for variety may be met by multiplying the superficial differences. It seems not unreasonable, then, to suppose that Canadian player manufacturers might find it possible to use a very considerable proportion of Canadian-made changers without reducing the variety of their offerings to such an extent that their overall sales would be significantly reduced. On the other hand, it is to be expected that some, and perhaps most, of Canada's producers of record players would find it expedient to continue to equip some, at least, of their models with imported changers.

Were the proposed duty to be imposed, it would tend initially to stimulate demand for those materials and skills that are specially required for the production of record changers and to diminish in some degree, perhaps, the demand for men and materials needed to produce record players. Over the years, the duty would tend in some degree to accelerate the growth of changer production and to retard the growth of player production. On balance, it seems possible, though it is by no means certain, that it might stimulate growth in the production of record changers and of record players considered together.

Certain other effects can be envisaged with rather more assurance. If Seabreeze or Audio continues to produce the changers used in Seabreeze players, the imposition of a duty on changers would give to Seabreeze and Audio, considered together, an advantage over other producers of players who would find it necessary either to pay the duty on imported changers or to pay a higher price for the changers produced in Canada. It is apparent, too, that the proposed duty on changers would tend to raise costs in the Canadian economy relatively to costs in other countries, at least with respect to the production of record players.

Principally, the proposals of the Canadian producer of changers involve the redistribution within the industry of the protection under item 597a(2). In arriving at its recommendations the Board has had to consider, among other things, the probable effect of continued free entry, the advantages that may result from enabling and encouraging the Canadian producer of changers to make further ingenious advances in design and in production techniques, the somewhat uncertain prospect that a duty might increase the production of changers and of players considered together, and the disadvantages which might result from raising costs in an economy in which they are high already.







## CONCLUSIONS AND RECOMMENDATIONS

In connection with Audio's proposal three factors must be considered:

1. Most changers are imported from the United Kingdom and would therefore become dutiable at 15 p.c.
2. The imported parts used in the Canadian changer would be from the United States and would therefore become dutiable at 20 p.c.
3. At an annual production rate of approximately 100,000 units, the United States content of the Canadian changer would be about 40 p.c. of factory cost.

Consequently, Audio's proposal would result in a net tariff protection of about 7 p.c.

In Audio's view this measure of protection would be more than enough to make its product competitive with changers imported from the United States. Although many changers from the United Kingdom and other European suppliers might still land in Canada at 5 to 10 p.c. less than Audio's price, Audio is of the opinion that because of its proximity to Canadian record player manufacturers and the quality of its new changer it would be able to secure a substantial share of the market.

There would seem to be little question that, without tariff protection, Audio will not resume the production of changers for sale to record player manufacturers other than Seabreeze. Indeed, one of the witnesses, speaking for both Audio and Seabreeze, stated that: "I would say that if we are not successful in getting protection at this time, I am afraid that is the way we will be going. We will become importers". He made it clear (pages 90 and 91 of the evidence) that in his opinion not only would Audio not resume manufacturing for industrial accounts but that the manufacture of changers even for Seabreeze might very well cease and the complete changer might be imported from the United States.

The imposition of a tariff on changers would undoubtedly increase the cost of changers to record player manufacturers. Relatively, this increased cost would fall more heavily on the popular low-priced record players; however, the effective margin of protection at present is much greater on the low-priced players than on the more expensive models. Some player manufacturers feared that any higher prices for record players might encourage imports, but as yet, imports do not seem to have been a factor in the low-priced record player field. Imports of the more expensive combination sets were stated to have been increasing in the last year or two.

The Board sees little advantage in recommending the imposition of a duty on parts of automatic record changers at this time. On the other hand, the Board recommends that a duty of  $7\frac{1}{2}$  p.c. be imposed on automatic record changers under both the British Preferential Tariff and Most-Favoured-Nation Tariff.

This could be done by:

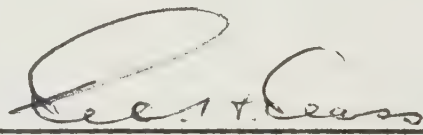
(1) the introduction of a new item reading:


Tariff Item	British Prefer- ential Tariff	Most- Favoured- Nation Tariff	General Tariff
597a (4) Automatic record changers	$7\frac{1}{2}$ p.c.	$7\frac{1}{2}$ p.c.	30 p.c.

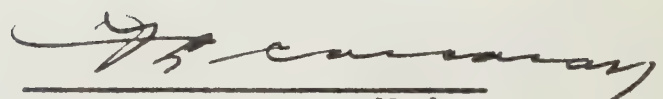
The Board suggests the number 597a(4) because item 597a is now enumerated in tariff item 4450(i).

(2) the substitution of the words "parts of automatic record changers" for the words "automatic record changers" where they appear in tariff item 4450(i).

These recommendations would impose a lesser burden on record player manufacturers than would Audio's proposal. They would afford about the same net protection as would have resulted from Audio's own proposal, at least while the Canadian content of the changer is about 60 p.c. of factory cost. They would not, however, afford any protection on changer parts.

  
Acting Chairman

  
Member

  
Member

Ottawa, October 20, 1959



















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